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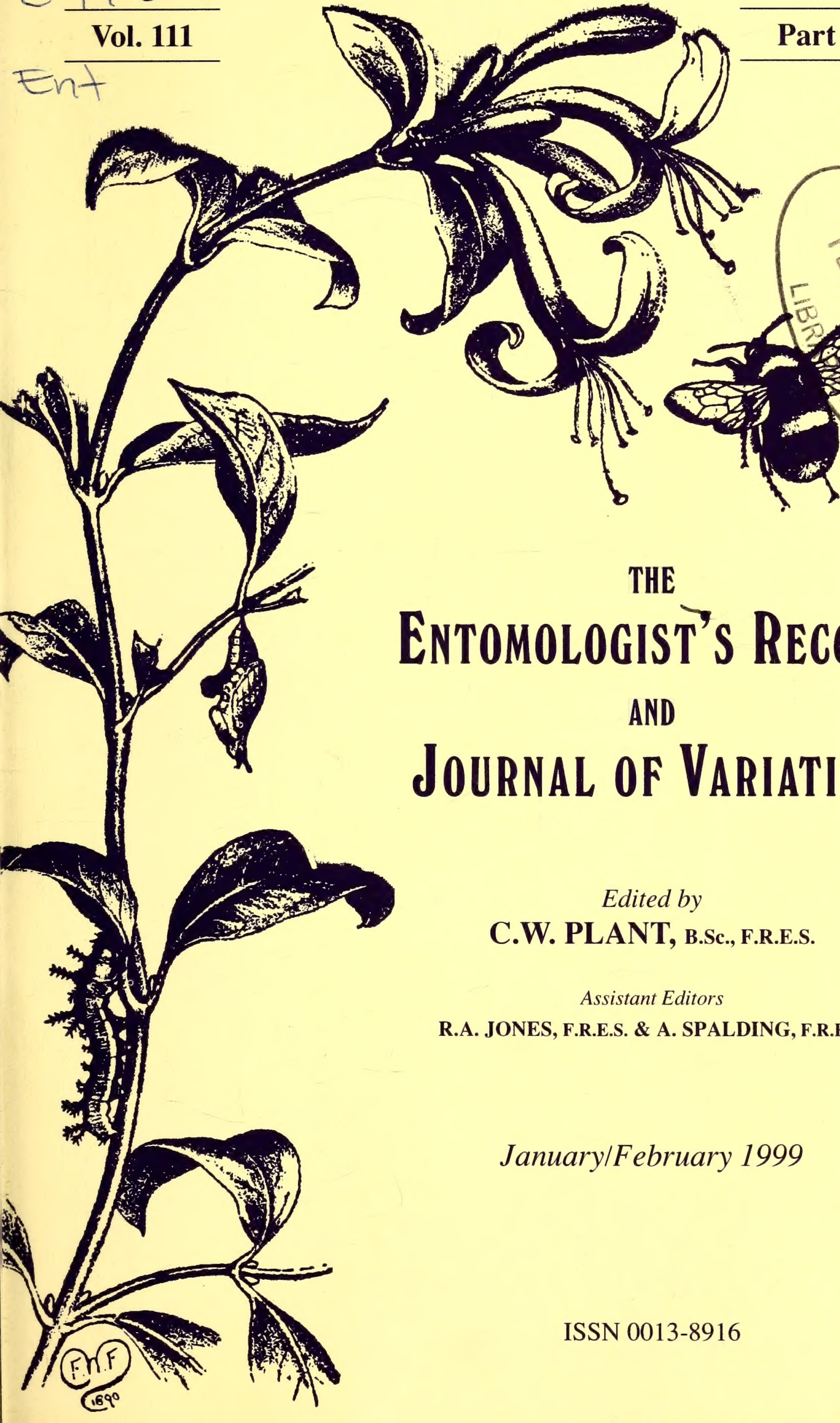

THE ENTOMOLOGIST'S RECORD AND JOURNAL OF VARIATION

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THE MACROLEPIDOPTERA OF BANFFSHIRE: 2nd SUPPLEMENT

Roy Leverton

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INCREASINGLY, recorders in English and Welsh counties are publishing atlases of their butterflies and moths – a welcome trend. Such a course is impractical in the less well-populated parts of the British Isles, where not only are there few observers to provide the data, but the potential sales of such a volume might be calculated in single figures. For vice-counties like Banffshire, it is only through the pages of scientific journals that the information contained in field notebooks can be given a more permanent form, and reach a wider audience.

Barbour (1976) published the first list of the macrolepidoptera of Banffshire, comprising 256 moths and 22 butterflies. A supplement (Leverton, 1993) added 36 moths and three butterflies. As the vice-county becomes better known, the rate of new discoveries has inevitably slowed. Even so, this second supplement adds a further 19 moths, but deletes one species on the original list, giving a total of 310 moths and 25 butterflies. There are still some obvious gaps, especially among the coastal moths.

Until recently, there was no collated list of Banffshire microlepidoptera. However, the Aberdeenshire recorders, R.M. Palmer and M.R. Young, kindly allowed themselves to be persuaded to take on Banffshire microlepidoptera too. Notebook searches coupled with increased fieldwork have already revealed around 250 species, with many more awaited. A full list of all Lepidoptera recorded in north-east Scotland (VCs 91-94, Kincardineshire, South Aberdeenshire, North Aberdeenshire and Banffshire) is available from R.M. Palmer, Greenburn Cottage, Bucksburn, Aberdeen AB21 9UA.

Underworked counties such as ours welcome records submitted by visiting recorders, who were responsible for several of the new discoveries in the present supplement. Naturally enough, most of these visitors come in the hope of seeing the Scottish specialities, but it is unfortunate that a few do not always pay close attention to moths which are not among their targets. Sometimes we receive lists which include unlikely species, well outside their known British range. When the observer is made aware of this, and asked for further details, the record is hastily withdrawn, with the explanation "I didn't really look at it – it wasn't one I needed." Indeed, I have twice been in the field with highly respected visitors and seen them barely glance at a moth, then misidentify it as something not yet on the Banffshire list. Had I not been there, such records might well have been accepted as genuine. So please, be meticulous!

A further source of confusion is the tendency up here for moths to differ in appearance and emergence dates from their conspecifics further south. Having warned others of this pitfall in the earlier supplement, it was galling to stumble into it myself. Every June and July I searched the sallow carr for *Eupithecia tenuiata,* puzzled at being unable to find it in what seemed entirely suitable habitat. Every

August, a small, weakly marked, very grey pug appeared about mid-month, often at sugar with the common *Xanthia* species. I recorded it as a partial second brood of *E. subfuscata*. After seven years, the penny dropped. Oh well, we all make mistakes! Presumably this was the large grey form of *E. tenuiata* named *cinerae* Gregson, mentioned by South (1908) as occurring in neighbouring Moray.

The overlapping of species whose emergences are separated by many weeks further south is especially striking here in years with cold, late springs. Thus in 1996, *Orthosia incerta* just made it into June, while *Anticlea badiata* was seen up to the 10th of that month. The last *Apamea sordens* (15 August) overlapped by two days with the first of the *Xanthia togata*. The first *Aporophyla nigra* and last *Thyatira batis* were seen on the same date (21 August), with a perfectly fresh male *Cucullia umbratica* the next night. One year, I expect to find the July Highflyer *Hydriomena furcata* and the December Moth *Poecilocampa populi* in the trap together, having missed this by only three days in 1994 (9 and 12 October respectively).

Even after living here for eight years, it is hard to readjust when species previously thought of as rarities are now among the commonest, and *vice versa*. Going to draw the blinds one cold but still evening (15.x.94), I noticed 16 small triangles on the kitchen window. Every one was a *Chloroclysta miata*. Light trapping in the garden a week later produced a catch of 30 *C. siterata* showing great variety of colour and marking. Such numbers at least give plenty of practice at separating the two (size and wing shape being particularly useful). Many female *C. siterata* lack any trace of red, while a few *C. miata* are flushed with pink.

Among the migrants, the pale immigrant form of *Eurois occulta* is several times more frequent than *Peridroma saucia*. *Pieris rapae* (occasional singles, but not every year) is a far scarcer visitor to my garden than *Vanessa atalanta* (31 on the *Buddleia* at once on 29.viii.97, with a further 18 on the line of sugared fenceposts just across the road – though this was exceptional). It took eight years to find the first *P. rapae* larva on our garden cabbages. This pupated successfully under a windowsill, only to be snatched from literally under my nose by a particularly bold male Great Tit, frustrating my desire to see how well it survived the winter. No doubt it was a "first" for the Great Tit too.

Deletion from the Banffshire list

Hepialus lupulinus L. – The only record has now been withdrawn by the observer. This species seems to be absent from north-east Scotland as a whole.

Additions to the Banffshire list

Zygaena exulans (Hohen.) – Loch Builg (OS grid reference NJ10), one in July 1976 (RA per MRY). Considered a windblown stray from the South Aberdeenshire sites, but there may well be undiscovered colonies in Banffshire, as much apparently suitable habitat exists.

Sesia bembeciformis (Hb.) – Ordiquhill, NJ55, common amongst *Salix* carr, but overlooked until 1993.

Epirrhoe galiata (D.&S.) – Inland on limestone at Inchrory, NJ10, in 1977, 1980 & 1997 (MRY, DAB), and at Tomintoul, NJ11, in 1993 (MRY).

Entephria flavicinctata (Hb.) – Tomintoul, NJ10, in 1993 (MRY).

Eupithecia tenuiata (Hb.) – Aberchirder, NJ55, August 1984 (LWH); Banff, NJ66, 1989 & 1996; Ordiquhill, NJ55, 1990-97, but originally misidentified as *E. subfuscata* Gen. II (Leverton, 1993). Specimens are very grey (*cinerae* Gregson) and do not appear until August.

E. trisignaria H.-S. – Ordiquhill, NJ55, male to m.v. on 21.vii.96.

Itame brunneata (Thunb.) – Glen Fiddich, NJ33, two on 30.vii.96 (DAB).

Gnophos obscuratus (D.&S.) – Macduff, NJ76, fairly common 29.vii.94 (DAB, RL).

Tyria jacobaeae (L.) – Ordiquhill, NJ55, male to m.v. on 26.v.95. Clearly a stray, at least 80km from a known breeding area.

Agrotis clavis (Hufn.) – "Banffshire coast", one, July 1993 (RK-J).

Standfussiana lucernea (L.) "Banffshire coast", July 1993 (RK-J); Macduff, NJ76. several, 26.viii.93 (PW, DAB, RL).

Noctua orbona (Hufn.) Ordiquhill, NJ55, male to m.v. on 3.viii.94. Unfortunately, I trod on it, much to the amusement of my friends. Now in coll. MRY.

Peridroma saucia (Hb.) Ordiquhill, NJ55, singles on 8.viii.95 & 3.x.97. Only two at the site, 1990-97, compared with ca. 55 *Agrotis ipsilon* Hufn.

Xestia alpicola alpina Humph. & Westw. Ben Rinnes, NJ23, larvae and pupae, June 1996 (MRY, RL, DAB). Moths resembled the Aviemore form.

Hadena confusa (Hufn.) – Findochty, NJ46, larvae on sea campion, 17.vii.96. Moth bred.

Tholera cespitis (D.&S.) – The Cabrach, NJ33, 1983 (JM).

Dichonia aprilina (L.) – Ordiquhill, NJ55, male to m.v. on 30.ix.97.

Celaena leucostigma (Hb.) – Ordiquhill, NJ55, singles at sugar, 14.viii.95 & 2.ix.96. Not thought to be resident in north-east Scotland, so presumed migrants.

Catocala fraxini (L.) – Ordiquhill, NJ55, male ab. *moerens* Fuchs to m.v. on 10.ix.95.

Other notable records

Inachis io (L.) – Ordiquhill, NJ55, one on *Buddleia*, 15.viii.97 (JL). Thought to be the first record for Banffshire this century.

Eulithis mellinata (Fabr.) – Ordiquhill, NJ55, female to m.v. on 9.viii.96.

Deilephila elpenor (L.) – Ordiquhill, NJ55, now almost annual, and up to three per night in some years. Perhaps established.

Cryphia domestica (Hufn.) – Banff, NJ66, one on shop window, 16.viii.96. At perhaps its northernmost limit in Britain.

Acknowledgements

I am grateful to the following observers for submitting records, which are identified by initials. The are R. Allen, D.A. Barbour, L.W. Hardwick, R. Knill-Jones, James Leverton, Joan Morgan, Paul Waring and M.R. Young.

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More Early Greys

With regard to Roger Morris' Early Grey *Xylocampa areola* (Esper) at Mitcham, Surrey on 11 January 1998 (*Ent. Rec.* **110**: 168) I myself would have regarded this as an "odd man out", derived from a microhabitat which must abound in the urban area. A species capable of feeding on cultivated honeysuckles might well find itself pupating in a "hot spot" unlikely to occur in a natural woodland environment. For example, my own records of 1982 at Hampstead show 27 trapped from 8 February to 29 May, though only two were prior to 21 April when the species began to turn up regularly. Again the following year one turned up on 30 March but the main influx began on 29 April.

However, my records, beginning in the late 1970s, do show fairly consistently earlier appearance dates over the long term, though I would regard even a twenty years period to be dominated by short term factors. My 1981 to 1985 records, ignoring the "odd man out", match Mr Morris' in being all 1 April but from 1980 the dates of first appearance have been almost consistently in March. The latest date in this period was 7 April (1996).– RAYMOND A. SOFTLY, 12 Parliament Court, Parliament Hill, Hampstead, London NW3 2TS.

Six-belted Clearwing *Bembecia ichneumoniformis* D.&S.) (= *scopigera* auct.) (Lep.: Sesiidae) in south-east London

As late as 1993 (Plant, *Larger moths of the London Area*: 12) the Six-belted Clearwing could be noted, in the London area, as an extremely local species restricted to the chalk. I was therefore quite astonished to sweep a male from a rough, grassy strip of ground with *Lotus corniculatus* (the foodplant) and other legumes, beside a path on Woolwich Common near here on 15 August 1998. However, Colin Plant was able to inform me that this moth has undergone a very marked increase in this part of the south-east, though most of the records so far were from the north side of the River Thames.– A.A. ALLEN, 49 Montcalm Road, Charlton, London SE7 8QG.

THE CURRENT STATUS AND PROSPECTS IN ENGLAND OF THE LARGE HEATH BUTTERFLY *COENONYMPHA TULLIA* MÜLLER (LEP.: SATYRIDAE)

Harry T. Eales

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IT IS EXACTLY fifty years ago that a similarly titled article was published in the pages of the *Entomologist*, by J.E.H. Blackie (1948). The lapse of time, and the changes in the distribution of this insect during this intervening period, more than justifies a further review of its current status.

Assessments on the distribution of any species can only be made when good, accurate, current data is available. In England a considerable amount of work has been carried out on this insect since 1995. Although this butterfly is known to exist in Wales, Scotland and Ireland its current status in these countries is at present far from clear, due mainly to the considerable amount of drainage which has taken place for the purposes of afforestation, peat extraction and changes in land use, in recent decades. A great deal of research is needed in all three of these countries on the present distribution of this butterfly, to bring them up to a similar standard to that of this species in England.

A study of the historical data available, has shown that numerous colony losses have taken place in England since this species was first detected in 1795. The reasons for these losses are invariably one or more of those given in the previous paragraph. There is only one locality where over-collecting may have been partially responsible. This was in the Delamere Forest, Cheshire. Five small mosses made up the Delamere group of sites. This area was known to produce specimens with the darkest shade of upper wing colouring, and the largest under wing spotting, of this insect to be found anywhere in Britain. As a consequence large numbers of collectors and dealers congregated there during the flight period of the butterfly. The last known specimen from this locality was taken on 11 July 1929. (Turner Coll. Liverpool Museum). Blackie states that his correspondent, Mr A.E. Tonge, informed him that, "The last site was lost by the submergence (flooding) of the breeding area", but no actual date was given for this.

In his article, Blackie noted that records existed for eleven English counties, although the data for some of them was very tenuous. He also made the cardinal error of many an author of books on British butterflies, in that he did not verify the accuracy of the data he was using. Under Durham, he simply copied what Edward Newman (1870) had written, unaware that Newman had accidentally transposed four Northumberland sites into Durham. Newman not noticing his error wrote, "Appears to have been exterminated in Northumberland". An error that was to be repeated by numerous authors, for at least eighty years. A glance at any map of the Northumberland and Durham area would have shown Newman's mistake.

In all, Blackie identified some 40 known sites by name, some of which he knew were already "lost ground". Only six of the sites he mentioned still have this

butterfly present on them. It has been lost on all the others. Of the eleven counties he named in his article, only six still have the butterfly today.

Until the early 1960s virtually all data on Large Heath sites came from insect collectors, who occasionally published their records in the Entomological Press or in County Lists. With the advent of the ITE Butterfly Recording Scheme, the "Entomological Recorder" came rapidly to the fore. But until recently very few additional Large Heath sites were located. This is because most recorders tend to operate in areas where many butterfly species may be found. Unfortunately the Large Heath, because of the type of habitat it frequents, is seldom accompanied by other species, except perhaps by the common, Green-veined White *Pieris napi*, and occasionally, the Small Pearl-bordered Fritillary *Boloria selene*. The very isolation of numerous colonies of the Large Heath deters recorders because of the difficulties encountered in negotiating the often rough terrain between the nearest road access, and many potential sites. Known sites with ease of access, tend to be recorded frequently, and if there are a few sites within a county then there is little or no stimulus, for either the collector or recorder, to look elsewhere within that area for additional new sites where this butterfly may exist.

Many of the older and well known localities frequented by this insect have been lost during the past century. However, the work of a small number of dedicated entomologists scattered throughout the Midlands and north of England has shown that, although there have been many site losses, some sites have survived, and new sites can be, and still are, being located.

It is not the intention of the author to name or indicate by grid reference, any site where this butterfly may be found. He considers that this information is, perhaps, better left unpublished in an effort to reduce the predation on this species by collectors. The exact details of all the currently occupied sites are known to the various organisations involved in the conservation of this insect and its habitat. These include Butterfly Conservation, English Nature, Forestry Commission, Ministry of Defence, certain National Parks, Wildlife trusts etc. All of these organisations are in a position to assist in, or advise on the preservation of this species, rather than its destruction.

With the exception of perhaps some six sites, where the records date from 1992 onwards, all other site records have been made or verified, between 1995 and 1998. All counties mentioned are the post 1974 counties. The rearrangement of county boundaries and the creation of some new administrative areas in that year, altered the county status of some known sites for this butterfly.

The definitions of terminology used in this article in relation to where this species occurs, are as follows:

Locality	A general area, eg. North York Moors, Solway Mosses, etc.
Site	The precise area of a locality where this species is to be found, which has the necessary larval food plant and adult nectar plant in sufficient volume to sustain the species. These areas can vary from as little as one to well over 100 hectares.

Colony — A site which is separated from another, by at least 500 metres of unsuitable habitat. This colony definition is that which is used in *The Large Heath Species Action Plan* (Bourn and Warren, 1997). If two or more sites in an area are within 500m. edge to edge they are regarded as one colony. In certain areas a single colony can involve as many as eight or more sites.

Sites in England vary in altitude from 15m to 470m amsl (none to the best of the author's knowledge have been accurately reported at any higher altitude in Wales, Scotland or Ireland).

Table 1 shows the English Counties where the Large Heath is still to be found, the number of sites within that county and the rationalisation of those sites into colonies, utilising the "Colony Definition". The arrangement of Counties is south to north.

County	Sites	Colonies
Shropshire	3	1
Lincolnshire	1	1
Yorkshire	6	6
Lancashire	2	2
Cumbria	41	31
Northumberland	150	101
Totals	**203**	**142**

Table 1.
Location of extant (1998) colonies of *Coenonympha tullia* in England by county area

The final colonies total should however be amended to 141 as the single Lincolnshire site and one Yorkshire site are artificially separated by the Lincs./Yorks. county boundary and are in fact one colony.

A final year's survey work is to be carried out by the author in Northumberland, and some detailed survey work remains to be done in North Yorkshire, where one new colony was detected in 1997 by Mr P. Summers of The Royal Scottish Museum. It is not beyond the bounds of possibility, that this butterfly may occur in other isolated areas in North Yorkshire and perhaps Derbyshire, which have not, as yet, been the subject of systematic examination.

The current status of this insect in Northumberland and Cumbria may appear to be strong, but there was a 20% loss of known sites between 1984 and 1996 in the former county and a 40% loss of historical sites in the latter, prior to 1996. The detection of numerous sites in both these counties over the past three years is not indicative of this butterfly increasing its range, but merely the detection of sites in areas which have not been explored for their entomological interest previously. In all probability, these recently discovered sites have been occupied by this insect for many centuries. Not all of the presently known sites have large or strong populations, many are in various stages of decline, and in several instances this decline is almost certainly terminal.

In England the butterfly occurs on a variety of different mire types, some of which are NNRs, LNRs, or SSSIs. However, unless these reserves are owned outright by a conservation organisation, or the landowners are willing to co-operate in the long term protection of the habitat, there is very little that can be done to stop the continued destruction of sites by commercial concerns (peat extraction, private afforestation) or by landowners wanting to "improve" their land for agricultural purposes. Several SSSIs have had, or are in the process of having, their peat reserves commercially extracted, and the Large Heath has been either exterminated or is under threat of extinction on these sites.

The future prospect for this butterfly in a European context is not promising. At the present time the Large Heath is in a severe decline and is almost extinct in some countries.

From a more positive viewpoint it should be noted that several Government Agencies which have a large land-holding, such as the Forestry Commission and the Ministry of Defence, are very active in conservation of many species including the Large Heath, when they are aware of the occurrence of this insect on their lands. National Parks can offer *Stewardship Agreements* to help preserve bogland habitat, and they do take an active part in mire restoration. There are certain National Trust properties where the Large Heath is still to be found. This latter organisation carries out biological surveys and habitat restoration work on its property, but its powers to conserve Large Heath habitat are perhaps, on occasion, limited by the terms of the tenancy agreements with the farmers occupying the land.

There is little doubt that this butterfly will continue to be a resident breeding species within England for many decades to come, especially in the most northern counties. But the current destruction of its habitat continues, and the decline of this species will follow this destruction. It will not be until all suitable mire habitats receive legally enforceable protection, that this decline will abate.

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It would be impractical to list everyone who has kindly provided information for this article, but the author wishes to thank all those who contributed records, and especially the following who have supplied detailed survey material to him, over the past three years, from various counties in England. Dr J. Joy, Mr C.W. Plant, Mr Martin Wain, Mr Martin C. White, Mr P.C. Rowarth, Mr P. Summers, officials of English Nature, the Invertebrate Sites Register, the National Trust, the Northumberland National Park, the Northumberland Wildlife Trust, the Institute of Terrestrial Ecology and Butterfly Net. Grant aid and other valuable assistance contributing towards the Large Heath Survey Project in Northumberland, was supplied by Butterfly Conservation, English Nature, the British Ecological Society, Forest Enterprise, Northumbrian Water, the Otterburn Training Area, (MOD), the Northumberland National Park, the Northumberland Wildlife Trust and the Viscount Ridley Trust.

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Databases consulted: Institute of Terrestrial Ecology. (BRC); Invertebrate Site Register (English Nature); Butterfly *Net.* (British Butterfly Conservation).

The author has established a computer data base exclusively for recording historical and current records of the Large Heath. He would be very grateful for any records of this species from anywhere within the British Isles. All information will be kept confidential.

Philereme vetulata (D.& S.)(Lep.: Geometridae) new to Co. Clare

A larva of *Philereme vetulata*, the Brown Scallop, was beaten from alder buckthorn *Rhamnus catharticus* L. on 20 May 1998 at Loch Bunny in the Burren district of Co. Clare, Ireland. The adult moth emerged the following month. This species was recorded in 1996 from the neighbouring county of Galway (Skinner, B., 1998. *Colour identification guide to moths of the British Isles.* Viking) but does not appear to have been reported previously from Clare.– ALAN JENKINS, 79 Westmoreland Terrace, London SW1.

Further spread of the Feathered Ranunculus *Polymixis lichenea* (Hb.) (Lep.: Noctuidae)

As county moth recorder for Surrey I sometimes receive dubious records from people not known to me, invariably unsupported by voucher specimens. In September 1998 I was contacted by Mr P. Williams, a recorder previously unfamiliar to me, who claimed to have taken not one but two examples of the Feathered Ranunculus in his trap at West Molesey. Although he was sure of his identification I was somewhat sceptical but, nevertheless, relieved to hear that he had retained the moths, and we arranged to meet the following week so that I could see them. A few days later, 27.ix.1998, I was going through my own trap, in South Croydon, when I saw a rather worn but clearly greenish noctuid which, as soon as I had laid eyes on it, rapidly vanished into the garden. It was with further relief that I recaptured the moth the following night when I was pleased to identity it as *lichenea*; an identification subsequently confirmed by dissection of the genitalia. I subsequently met Mr Williams and was able to confirm his specimens. I later heard from James Halsey that he had recorded a specimen of this moth at East Sheen on 17.ix.1998 .

West (*Ent. Rec.* **110**:244) recently described the spread of *lichenea* in north-west Kent, citing recent records as well as those from the London area (Plant, 1993. *Larger moths of the London area*). Collins (1997, *Larger moths of Surrey*) gives two records for Surrey: Wormley, 26.ix.1962, Messenger; and Addiscombe, 26.x.1969, Evans. This latter record also being the first for the London area quoted by West. These recent Surrey records are further evidence of its spread along the course of the Thames, a distribution shared by such species as Mullein Wave *Scopula marginepunctata* (Goeze), Yarrow Pug *Eupithecia millefoliata* Rössler and Least Carpet *Idaea rusticata* (D.&S.) – another species which is spreading and has been recorded throughout Surrey but is only common in the north of the county. As with West's records, the four 1998 Surrey examples were all male, as, of course, are the majority of moths at m.v. traps; it remains to be seen whether the moth can establish itself in Surrey, but as the larva seems to eat very many species of plant it should well be able to.– GRAHAM A. COLLINS, 15 Hurst Way, South Croydon, Surrey CR2 7AP.

***Euryporus picipes* (Paykull) (Col:. Staphylinidae) in Roxburghshire**

I shook a specimen of this uncommon beetle from very wet moss on a visit to Linton Loch, Roxburghshire with my friend Magnus Sinclair on 25.iv.98. Fowler (1888. *The Coleoptera of the British Islands* vol 2.) recorded it from the "Scottish lowlands" but there do not appear to be any recent records from this part of the British Isles. Other Scottish sites at which the beetle has been recorded recently include St Fergus, North Aberdeen (Redgate, 1981. *Ent. mon. Mag.* **117**: 201), Sands of Forvie, NNR, North Aberdeen, (Crowson cited Redgate *loc.cit*), Rannoch, Mid Perth (Dobson, 1978. *Glasg. Nat.* **19**: 363) and Abernethy Forest, Elgin (Owen, 1998. *Br. J. Ent. nat. Hist.* **10**:. 175).– J.A. OWEN, 8 Kingsdown Road, Epsom, Surrey KT17 3PU.

SUBURBAN GARDENS IN SOUTH-WEST LONDON AS HOMES FOR SUBTERRANEAN BEETLES

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IN THE SPRING of 1995, the trial of a prototype underground pitfall-trap in the author's garden revealed that it was providing a home for the subterranean weevil *Raymondionymus marqueti* (Aubé) and a number of other soil-inhabiting beetle species (Owen, 1995). To find out more about the subterranean beetle fauna of gardens in the area, underground pitfall-traps were set in a number of suburban gardens in south-west London.

The survey

The study was carried out during 1995, 1996 and 1997. Traps were set in gardens usually in a border near the perimeter fence in soil containing roots of trees or shrubs. Mostly, only one trap was set in each garden but two were set in one garden and three in another. A few traps were set in the middle of grass lawns. All the gardens lay within a circle of radius 15km from the centre of Epsom, Surrey. In preliminary studies, traps were set in a few gardens for two or three weeks only but, to allow reasonable comparison between gardens, only data from gardens in which traps were for at least 12 weeks sometime in the period May to August are considered in this paper. Four of the gardens had been created on chalk (rendzina), one on fine sand, five on loam and two on clay.

The pitfall-traps were set and operated as previously described (Owen, 1997a), with the minor change of having an empty plastic drinking container pushed into the top of the mesh cylinder to make the trap more secure against the entry of surface fauna. They were charged with a mixture of equal parts malt vinegar and sweet sherry. The contents of traps were examined at intervals of two to eight weeks and all the beetles present identified and counted. Because more than one trap was set in some gardens, trapping effort at each garden was computed in terms of trap-weeks. The total trapping effort expended was 496 trap weeks.

Results

The 2240 beetles collected comprised 60 species. A list of these is given in Table 1, which indicates the number of gardens in which each species was found and the numbers of each species trapped. The relative abundances of species varied considerably. A few species were found in some numbers but no fewer than 20 species (33% of the total) were represented by single specimens. No species was trapped in all 12 gardens but *Raymondionymus marqueti* was trapped in 10 gardens and two others – *Rhizophagus perforatus* and *Anommatus duodecimstriatus* were trapped in nine gardens.

Four of the species trapped are Red Data Book species (Hyman and Parsons, 1992; 1994) *viz Alevonota aurantiaca* (RDB1), *Trichonyx sulcicollis* (RDB2),

Anommatus diecki (RDBK) and *Langelandia anophthalma* (RDB3) and three are Nationally Notable *viz.* – *Acrotona parens, Athous campyloides* and *Anommatus duodecimstriatus*.

The influence of soil type on the catch is summarised in Table 2. On average, gardens on chalk produced the largest catch (expressed as beetles per trap-week) whereas gardens on clay, produced on average, the largest number of species. Traps set in the middle of grass lawns failed to catch any beetles.

Discussion

The fact that gardens can possess an extensive beetle fauna is well documented. Henderson (1945, 1946) recorded 366 species from his garden at Purley, Surrey. Allen (1998) recorded 805 species from his garden at Blackheath, Kent during the years 1927 – 1973. Neither of these authors specifically sought subterranean species but findings in this study indicate that gardens are rich in these species too. No doubt, a longer list of garden subterranean species could have been obtained by further effort but there would undoubtedly be a diminishing return. Not one of the species was found in all 12 gardens. Most of the species encountered were trapped in less than half of the gardens studied but it has to be noted that, when traps were set in more than one position in a garden, the catch in terms of species present varied in different positions. Thus the apparent absence of a species from a garden may have been more due to the position(s) selected for the trap(s) rather than to a real absence. Not surprisingly, most of the beetles species trapped underground are small. In this study, 95% of the specimens belonged to species less than 5mm long and easily able to pass through a tunnel 1 sq mm in cross section.

Many of the species trapped are recognised as species normally living or developing in the soil. Others live on the surface of the soil or in decaying vegetation and may have found their way into traps by chance, perhaps burrowing into the soil to escape desiccation. Some, such as *Carpophilus marginellus* and *Glischrochilus hortensis*, are normally associated with sap running from tree wounds or under bark and may have been attracted to the traps by the sherry-vinegar mixture with which they were baited. *Abraeus globosus* normally occurs in rotten wood and it may be relevant that there were rotten logs lying on the soil near where the particular trap was set.

There was considerable variation in the relative abundances of different species. This is the usual finding in surveys by trapping (see, for example, Williams, 1964; Taylor, 1978). The abundances of 499 species recorded by trapping with a flight-interception trap ranged from one to 841 specimens (Owen, 1993); 125 species (27% of the total) were represented by single specimens.

There does not appear to have been published a list of subterranean beetles with which this garden list can be compared but an on-going similar survey of subterranean beetles in woodlands in the same general area has produced to-date 100 species. Some of these have occurred both in gardens and woodlands but there are apparently differences in the subterranean beetle fauna in the two habitats. Thus out

of the 60 species trapped in gardens, 36 have not so far been trapped in woodlands. Of the seven Red Data Book and Nationally Notable species found in gardens, only one - *Anommatus duodecimstriatus* – has turned up in woodlands. A full comparison of gardens and woodlands obviously requires more woodland trapping but it is unlikely that all the differences already noted will disappear.

The paucity of species and beetles in the one garden on fine sand is mirrored by a similar paucity in woodland on the same type of soil. Fine sand naturally packs tightly making it difficult for beetles to pass through it. Holes made by the passage of worms and other tunnelling creatures are not semi-permanent in sand as they are in the other types of soil. The greater number of species from gardens on clay may be related to the moisture holding properties of this type of soil.

Five of the species trapped in gardens, *viz.–*, *P. wollastoni, A. diecki, A. duodecimstriatus L. anophthalma* and *R. marqueti* have an number of features in common. They lack eyes and wings and except, for *P. wollastoni*, have fused elytra. Apart from *A. diecki*, they were among the beetles trapped in greatest numbers in gardens. Three of these species – *A. diecki, L. anophthalma* and *R. marqueti*, have not so far turned up in traps in woodland while the other two turned up there in very small numbers – two and ten respectively. It thus seems that lack of eyes and wings and fused elytra are features specialised for an underground lifestyle and that in south-east England, at least, the more specialised underground beetles are insects of gardens rather than insects of the countryside. Absence of wings must seriously interfere with natural spread of an insect and it may be that these beetles were introduced to Britain and distributed between gardens by human activities.

The presence of a number of Red Data Book and Nationally Notable species in gardens raises an interesting conservation issue. The national status of insects is one of the factors used in deciding which habitats should receive priority in protection and it would seem sensible that the importance of this index should not be weakened by giving high status to more or less exclusively garden insects. The same argument applies to species living in man-made compost heaps. One grass-compost heap studied over a three year period was found to harbour six Red Data Book and eight Nationally Notable species, some of which appear to be more or less confined to this habitat (Owen, Allen, Booth & Luff, 1997).

Notes on selected species

Stomis pumicatus. This was the only carabid to be trapped more than once. Little appears to be known about it ecology but its recorded occurrence in flood debris is consistent with a subterranean life style. The elongate mandibles could conceivably be an adaptation to seeking prey in tunnels in the soil.

Parabathyscia wollastoni. This beetle was the most abundant of the species trapped in gardens comprising over a third of the total specimens. Though it was recorded from four gardens, 917 specimens came from a single trap in a garden on chalk. In gardens, it occurs nearly entirely underground; it was not among the 366 species recorded in his garden by Henderson (1945, 1946) and Allen (1953), in his very

extensive study of garden beetles, recorded only two specimens, both taken under cut grass. This species has been recorded from old seed potatoes (e.g. Wood, 1886) but the garden in which the 917 specimens were trapped had not been used for growing potatoes or any other root vegetables for at least a decade and the ground in which the trap was set had received only minimal cultivation for many years. Abroad, *Parabathyscia* forms part of a large group of related genera, many of which live in caves. As far as adaptation to underground existence goes, *P. wollastoni* has long been noted to lack eyes. Examination of about 20 trapped specimens revealed that they lacked wings but the elytra were not fused.

Alevonota aurantiaca. A single specimen of this species was trapped in a garden on loam at what was historically the edge of the North Downs. The species is known only from Dorset, South Hampshire and Surrey, where it has been found on relatively few occasions usually by sweeping in calm weather (Allen, 1991). Two specimens were caught in a flight interception trap on chalk downland (Owen, 1997b). Its appearance in an underground trap supports the view that it essentially an underground species.

Acrotona parens. This species was not recognised as British until Champion (1909) recorded a specimen from Guildford, Surrey. Since then, it has been noted in other parts of south and south-eastern England and in North Wales though there are few published records.

Trichonyx sulcicollis. A single specimen was trapped in a garden backing on to a large woodland area. The beetle has been recorded mostly from woodland areas though the only other example found by the author was also in a garden, at Bishop's Waltham, Hampshire.

Athous campyloides. A male and female of this crepuscular species was trapped in a garden on loam, along with two larvae probably of this species. The beetle is normally found at the roots of grass in sandy areas.

Rhizophagus parallelocollis. Sixteen specimens came from traps in three gardens. The species has long been recognised as one occurring underground, usually in association with the corpses of animals or with coffins. Enquiries, however, did not uncover any other evidence of burials in the gardens concerned. This species has wings and the elytra are not fused. Peacock (1977), citing Horion (1960), states that adults come to the surface in spring and swarm.

Rhizophagus perforatus. This was one of the commonest species to trapped. It is another species recognised as a garden insect (e.g. Henderson, 1945; Allen 1950), being found usually under pieces of wood or stones or in compost. It appears regularly in small numbers in an m.v. light trap set near a compost heap in the author's garden.

Table 1: Beetles taken in underground traps set in gardens.
The total number of specimens was 2240. Data cover 12 gardens.

Species	Number of gardens with species	Number of specimens
CARABIDAE		
Clivina fossor (Linnaeus)	1	1
Trechus obtusus Erichson	1	1
Stomis pumicatus (Panzer)	1	6
HYDROPHILIDAE		
Megasternum obscurum (Marsham)	3	6
HISTERIDAE		
Abraeus globosus (Hoffmann)	1	7
Kissister minimus (Aubé)	1	1
PTILIIDAE		
Ptenidium laevigatum Erichson	2	13
P. pusillum (Gyllenhal)	2	3
LEIODIDAE		
Parabathyscia wollastoni (Janson)	4	950
STAPHYLINIDAE		
Coprophilus striatulus (Fabricius)	1	1
Platystethus nitens (Sahlberg)	1	1
Anotylus sculpturatus (Gravenhorst)	5	53
A. tetracarinatus (Block)	2	5
Lathrobium fulvipenne (Gravenhorst)	1	1
L. multipunctum Gravenhorst	1	1
Sunius propinquus (Brisout)	2	13
Othius myrmecophilus Kiesenwetter	1	2
Xantholinus linearis (Oliver)	2	4
Quedius mesomelinus (Marsham)	1	2
Tachyporus dispar (Paykull)	1	1
T. hypnorum (Fabricius)	1	1
T. nitidulus (Fabricius)	2	3
Tachinus subterraneus (Linnaeus)	1	2
Cordalia obscura (Gravenhorst)	3	3
Callicerus rigidicornis (Erichson)	1	4
Dinaraea angustula (Gyllenhal)	1	1
Plataraea brunnea (Fabricius)	1	9
Philhygra elongatula (Gravenhorst)	1	2
Mocyta fungi (Gravenhorst)	1	1
Acrotona parrens (Mulsant & Rey)	1	1
Datomicra nigra (Kraatz)	1	3
Atheta triangulum (Kraatz)	2	32
A. xanthopus (Thomson)	2	30
A. crassicornis (Fabricius)	2	7
A. oblita (Erichson)	2	11
Alevonota aurantiaca Fauvel	1	1
Oxypoda opaca (Gravenhorst)	1	2

Species	**Number of gardens with species**	**Number of specimens**
PSELAPHIDAE		
Euplectus karsteni (Reichenbach)	1	2
Trichonyx sulcicollis (Reichenbach)	1	1
SCARABAEIDAE		
Oxyomus sylvestris (Scopoli)	1	3
ELATERIDAE		
Melanotus villosus Geoffroy	1	1
Athous campyloides Newman	1	2
THROSCIDAE		
Trixagus carinifrons (de Bonvouloir)	1	2
NITIDULIDAE	1	3
Carpophilus marginellus Motschulsky	2	2
Glischrochilus hortensis (Fourcroy)	1	1
RHIZOPHAGIDAE		
Rhizophagus parallelocollis Gyllenhal	3	16
R. perforatus Erichson	9	183
CRYTOPHAGIDAE		
Atomaria testacea (Marsham)	3	3
A. pulchra Erichson	1	1
BOTHRIDERIDAE		
Anommatus diecki Reitter	7	38
A. duodecimstriatus (Müller)	9	285
ENDOMYCHIDAE		
Mycetaea hirta (Marsham)	1	1
LATRIDIIDAE		
Aridius nodifer (Westwood)	2	10
Cortinicara gibbosa (Herbst)	1	1
COLYDIIDAE		
Langelandia anophthalma Aubé	4	162
CHRYSOMELIDAE		
Phyllotreta nigripes (Fabricius)	1	4
CURCULIONIDAE		
Otiorhynchus singularis (Linnaeus)	1	1
Barypeithes araneiformis (Schrank)	3	57
B. pellucidus (Boheman)	8	85
Raymondionymus marqueti (Aub.)	10	193

Anommatus diecki. This species is known to lack eyes and examination of a number of examples showed that it also lacked wings and has fused elytra. Until recently, this species was known only from Cheshire where the first recognised British specimens were found in 1984 (Eccles & Bowestead, 1986). Subsequently, as noted by Booth & Owen (1997), a few specimens taken prior to its discovery in Cheshire were discovered among material in The Natural History Museum, London and specimens have been found recently in gardens in Kent and East Sussex.

Anommatus duodecimstriatus. This was one of the commonest beetles trapped with 285 examples recorded from nine gardens. Another eye-less species, it also lacks wings and has fused elytra. In Britain, it has been found in various localities in the southern half of England, frequently in the shrivelled skins of seed potatoes remaining in the soil after producing the potato plant. It has also been found in decomposing vegetable debris (Allen, 1954), under bark and at tree roots. It occurs regularly in the remains of seed potatoes in a garden allotment situated near some of the gardens studied.

Langelandia anophthalma. There were 162 examples recorded from four gardens but it has yet to be obtained by trapping in woodlands. It is yet another species lacking eyes and wings and with fused elytra. This species was first found in Britain in the remains of seed potatoes at St Peters in Kent (Wood, 1886). Wood recorded that the seed potatoes came from Guernsey and discussed the possibility that the beetle might have been imported. At the time it was noted in Europe to be found principally in gardens under pieces of wood or wooden objects such as barrels lying on the ground. As in the case of the last species, it has been recorded mainly from the remains of seed potatoes but it has also been found in association with old roots. There are published records for sites in southern England stretching from Kent to Cornwall (e.g. Wood, 1886; Allen, 1937; Allen, 1954; Booth, 1977; Denton, 1997). Nearly all of these records have been for essentially synanthropic situations. It is perhaps relevant that many specimens of the beetle were found on the under-surface of large logs lying on the ground in the author's garden in the 18 months immediately preceding the first use in the garden of underground traps.

Barypeithes araneiformis and *B. pellucidus*. These two polyphagous, ground-dwelling weevils were trapped in relatively large numbers. They have eyes but are without wings and have fused elytra. Their occurrence in underground traps indicate that they burrow below the surface possibly for laying eggs in roots.

Raymondionymus marqueti. This is another species which was trapped in some numbers in gardens but not in woodlands. The species is known to lack eyes (Osella, 1977). Examination of a number of specimens trapped in the Epsom area showed that they also lacked wings and have fused elytra. It appears to be an introduced species which was first noted at Kew Gardens, Richmond (Williams, 1968) and later at Bromley, Kent (Thompson, 1995). An account of its presence in north-west Surrey has already been published (Owen, 1997a).

Type number of soil	Number of gardens	Trapping effort (trap-weeks)	Total number of beetles	Number of beetles per trap-week	Average of species per garden
Chalk	4	309	1708	5.8	14.5
Fine sand	1	30	1	–	1
Loam	5	71	206	2.9	7.4
Clay	2	86	325	3.5	17.5

Table 2: Influence of soil type on numbers of beetles and numbers of species trapped in gardens.

Comments on the trapping procedure

In general, the trapping procedure used in thus study has proved simple and reliable, both in the author's hands and in the hands of colleagues. Two traps suffered interference from animals, being torn out of the ground and chewed. This happened once in the author's garden when he forgot to replace a stone covering the mouth of the trap which allowed it to be dug up, presumably by a fox as it would not have been accessible to a dog. On the second occasion, the trap dug up was in a wood accessible to dogs and foxes. It had been covered with a stone but, presumably, this was not sufficiently heavy.

Although no trouble has been experienced in lifting up traps and re-siting them, two minor modifications make the trap stronger. Firstly, the mouth of the trap can be strengthened by setting a short (1cm) section of rigid pipe into the upper end of the netting cylinder, fixing this in place with a rim of "Blue Tac" adhesive (Bostik Ltd, Leicester) and winding PVC self-adhesive tape round the outside. Secondly, by means of a curved needle, a length of fine, plastic covered wire can be threaded vertically through both layers of netting where they overlap to help maintain its cylindrical shape. "Netlon" greenhouse shading (Netlon Ltd., Blackburn) has proved a satisfactory alternative to nylon mesh but traps longer than 20cm made with "Netlon" mesh require a short (1cm) section of rigid pipe set inside half-way down, and fixed as for the strengthened rim, to maintain the netting in a cylindrical shape.

Acknowledgements

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Localities for *Phyllonorycter muelleriella* (Zeller) (Lep.: Gracillariidae

On 16 November 1997 I visited some woods at Whitecroft in the Forest of Dean, Gloucestershire. On the way home, I stopped off at Cirencester Park, situated on the north side of the A419 road to the west of Cirencester, also in Gloucestershire. At both localities I collected samples of *Phyllonorycter* mines in fallen oak leaves and in foliage still on trees in the hope of finding *Phyllonorycter distentella* (Zeller). These mines were kept in an unheated outhouse until mid-January 1998 when they were brought indoors for forced emergence.

From this material I reared many *P. quercifoliella* (Zeller), a few *P. harrisella* (L.) and examples of *P. lautella* (Zeller) and *P. heegeriella* (Zeller), though no *distentella*. However, the emergence of numbers of the local and very distinctive *P. muelleriella* from both sites between 21 and 28 February provided some compensation for this.

P. muelleriella is a species I have not met with before, it being confined to the ancient oak woodlands of the Welsh border counties, northern England and Perthshire in Scotland. Emmet discussed this species' distribution (*Ent. Rec.* **86**: 206 - 208) and described its mine. It appears that it was known chiefly from Gloucestershire. This was subsequently confirmed by him (*Ent. Rec.* **87**: 240 - 245) whilst Ffennel (*Ent. Rec.* **87**: 245 - 247) described rearing it from Herefordshire. Its total absence from the large tracts of apparently suitable ancient oak woodland in south-eastern England that I have sampled in the past is striking and somewhat puzzling.– I. Sims, 2 The Delph, Lower Earley, Reading, Berkshire RG6 3AN.

***Tachystola acroxantha* (Meyr.) (Lep.: Oecophoridae) – an established colony in North Hampshire**

Further to our report of the first record of *Tachystola acroxantha* in North Hampshire in 1997 (*Ent. Rec.* **110:** 83), we are pleased to report the appearance of this moth in 1998. Single moths have been trapped on 4 May and on five occasions in September, with the first record being 20 September. This would seem to indicate that the moth is double brooded and has an established colony in Fleet (OS grid reference SU 797539).

The single record only, in May, is puzzling as the actinic trap has been run on many nights throughout the year. But it may be that *T. acroxantha* has appeared and not been recorded, as they are very active moths which show a reluctance to enter the trap, preferring to rest upon the vanes for up to an hour before flying away. It may be that this behaviour leads to under-recording of *T. acroxantha* as the trap needs to be frequently checked, otherwise the moths are missed.

The moths recorded in September fly in early evening – from around 8pm, with the latest being seen after 10pm and staying until 11pm. A voucher specimen taken in 1997 has been placed in Reading museum.– Rob Edmunds, 32 Woodcote Green, Calthorpe Park, Fleet, Hampshire GU13 8EY & Ron Parfitt, 29 Manor Road, Farnborough, Hampshire GU14 7EX.

UNUSUAL ABUNDANCE OF *CHIASMIA CLATHRATA* (L.) (LEP.: GEOMETRIDAE) IN ESSEX IN 1997

B. GOODEY

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ON 25 AUGUST I received a phone call via Essex Wildlife Trust from a resident of Little Clacton, Essex, whose house was being invaded by a type of butterfly or moth, attracted by lights and coming in to the kitchen through open windows. It became apparent from her description that the species in question was the geometrid moth *Chiasmia clathrata* (L.) the Latticed Heath.

Within a few days recorders operating along the coast of north-east Essex began to contact me, reporting high numbers of adults in their garden light traps and some suspecting these to be the product of a substantial migration. This idea was supported by rumours of large numbers of Small Tortoiseshell butterflies coming in off the sea at Norfolk at the same time (see Tunmore, 1998a), though neither Skinner (1984) or Skou (1986) regards *C. clathrata* as being a migratory species.

Fortunately this part of Essex has a number of conscientious lepidopterists who habitually keep records of their nightly catches and this includes details of common species. These traps are situated at Dovercourt, Kirby-le-Soken, Frinton-on-Sea (the only actinic lamp), and St Osyth. To help create an overall picture, their records were added to those received from other traps nearby which included two at Jaywick and two across the border in Suffolk from the Landguard Bird Observatory and Felixstowe as well as daytime sightings from as far away as Cold Norton on the Dengie peninsula, spanning a distance along the coast of approximately 55 kilometres. This appears to be the key area, though there are few recorders living to the north and south of here. Those contacted outside this limit did not notice anything unusual during the flight period.

There are thought to be usually two generations of *C. clathrata* each year in Essex. The first is typically represented by very few adults, widely spaced out during the flight period from April to June (although so sparse are the records that the exact timing is unclear). This was reflected in 1997: just three adults were reported at the Dovercourt and St Osyth traps from April and May, and none at all in June.

First generation adults are known to oviposit on lucerne, *Medicago sativa sativa* L., a crop which is grown commercially on the Dengie peninsula, and sporadically over the rest of the area as a supplement in crop rotation (Tarpey and Heath, 1990). The resulting second generation adults are usually common and are recorded from July until late September. In July 1997 the traps at Landguard, Dovercourt, Kirby, Frinton and St Osyth recorded 7, 18, 9, 0 and 137 respectively with two faint peaks, one in the middle and one near the end of the month; and for August up to the 21st they noted 2, 9, 6, 0 and 9. From the 21st, however, numbers rapidly rose as Fig. 1 shows.

There are two obvious peaks, centred around 23 and 31 August. There were many additional trap reports in August from other sites in the area, observations done on a

more casual basis. These include Colne Point Nature Reserve, which reported 700 on 22nd, 400 at Stour Wood Nature Reserve on 23rd, a Colchester trap further inland yielded 200 on the same night (compared with 9 on 26 July), and two traps at Jaywick reported catches of 2,500 and 800 adults on the night of 25 August.

There were also four important daytime observations. On 21 August, Graham Smith estimated 8,000-10,000 adults on a single lucerne field near Burnham-on-Crouch, with thousands nearby on other fields. Don Down had a similar experience on 23 August on lucerne fields near Latchingdon and South Woodham Ferrers. At Cold Norton he swept lucerne for larvae, which were very numerous and in different stages of development, and these were subsequently reared successfully, none suffering from parasitism or disease.

Sifting through reports received from 27 sites elsewhere in Essex it is clear that those living away from the north-east coast and the Dengie peninsula saw more usual numbers or none at all, thus defining the area affected, and were largely unaware of events further east. The eventual fate of the swarm is unclear and adults may simply have stayed put or been blown out to sea. There are two reports from outside the area, however, which may hint at some movement. The first is from Bury St Edmunds (30 kilometres to the north-west) where an observer caught single adults on 26 and 31 August, the first he has seen in eight years of trapping (M. Tunmore, *pers. comm.*). The second, from Peter Davey, records an unusual eleven adults between 26 August and 2 September from various localities in Dorset. No unusual numbers have been reported from Kent (E.G. Philp, *pers. comm.*).

Weather conditions

Chris Gibson kept (unpublished) weather notes for Dovercourt and relates that the first three weeks of August were hot and dry. Indeed, the last rain had been in mid-July and the last significant rain was at the end of June. It was humid from 21 to 24 August, with south/south-westerly winds, and rather overcast. Chris's minimum night temperatures in this period ranged from 19° to 21°C (21° was the highest night minimum he has recorded in four years at Dovercourt). There was significant rain on both 21 and 24 August. 25 to 31 August was more unsettled and cooler with winds between south-east and south-west. This period was generally windier, and minimum temperatures lower, typically 14° to 16°C. There was rain on the 29th. It was cooler still from 1 to 5 September, with nightly minimums down to 10°C and rather windy.

In Dorset, Peter Davey reports wind direction as being southerly on 26 and 27 August, westerly on 30 August and south-westerly on 1 and 2 September.

Conclusion

If truly indigenous, as the report of larvae suggests, this *C. clathrata* swarm would have originated from the Dengie peninsula, with its vast amounts of lucerne, and then probably moved northwards. Numbers of adults recorded at the two most southern traps at St Osyth and Jaywick would seem to hint at this, and even the Bury St Edmunds observation may tie in.

	Landguard	Dovercourt	Kirby	Frinton	St. Osyth
21 Aug	1	5	41	52	785
22	17	387	134	28	**1475**
23	173	**1384**	**154**	55	1400
24	**224**	14	–	**57**	1400
25	204	28	14	42	153
26	68	26	1	2	113
27	16	–	1	1	90
28	7	10	–	6	111
29	0	**463**	32	14	325
30	30	112	5	3	–
31	19	275	**283**	**42**	**1720**
1 Sept.	**36**	78	13	19	1500
2	15	172	11	5	475
3	11	–	–	1	–
4	5	6	4	–	50
5	4	1	2	–	7

Table 1. Number of adults caught each night from five locations. Bold text indicates peaks. No counts are represented by a dash.

There are signs, based on records received for other species in Essex, of some migratory movement into the country between the 8 and 11 August but nothing significant towards the latter part of the month. At first there appears to be little evidence of migration and good reason to suspect that all late summer adults were locally bred. However, there are no reports of adults being particularly common early in the season that would help to explain the vast numbers encountered during late August, especially if only two generations were involved. Allowing four to five weeks between generations, it is perhaps possible that three broods could have been produced, making use of the good summer and plentiful food supplies and promoting a rapid population built up. This is probably unrealistic but it would help to explain the mid-July numbers.

The possibility that the swarm was partially or entirely composed of primary migrants, from the Low Countries for example, cannot be dismissed, especially in light of the Dorset specimens which Peter Davey believes originated from outside of Britain and may have arrived with a swarm of Small Tortoiseshell noted at Durlston on 26 August (and there remains the huge Small Tortoiseshell influx at Norfolk during late August and early September). No significant numbers of this butterfly were reported from Essex, however.

Talking to local entomologists has revealed the possibility of a cycle for *C. clathrata*, which may span two or three years, although this is based on rather flimsy evidence at present and further field work will certainly be needed to confirm this. Outbreaks that have some substance include 1994, when Don Down recalled an abundance of larvae in lucerne fields on the Dengie peninsula, and there are records from Reg Arthur at St Osyth of unusual numbers of adults during August and September 1992, although nowhere near as high as in 1997 (the best being 123 on 25th August 1992). Interestingly, Dorset recorded ten adults in 1992, mostly in September, compared to a more usual two per year (P. Davey, *pers. comm.*). Such a cycle, if it exists, may simply be linked to the quantity of lucerne being grown here or abroad, or alternatively the late development of the host plant because of adverse weather conditions such as drought delaying the cutting operation and giving larvae more time to develop.

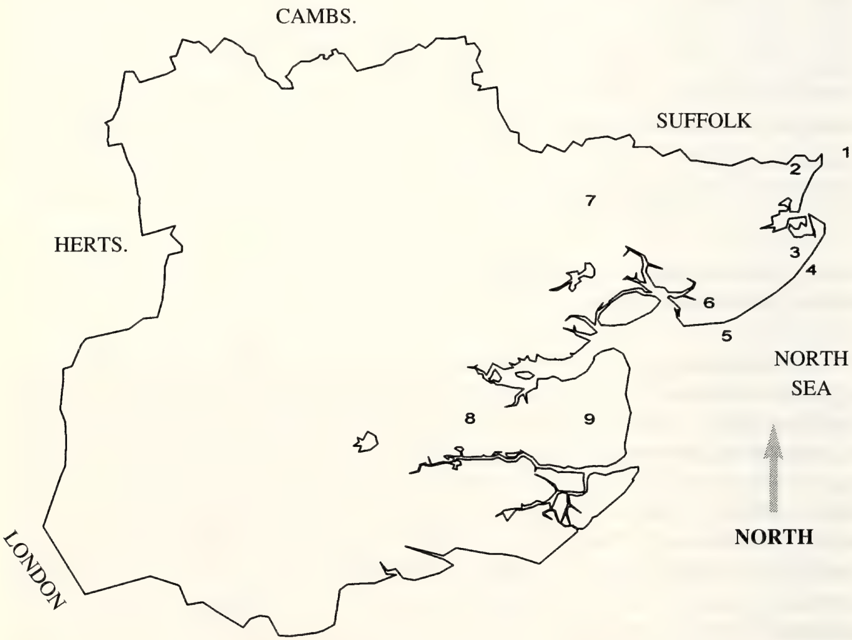

Fig 1: Map of Essex showing principal locations mentioned in the text:

1. Landguard Bird Observatory
2. Dovercourt
3. Kirby-le-Soken
4. Frinton-on-Sea
5. Jaywick
6. St Osyth
7. Colchester
8. Cold Norton
9. Dengie peninsula

Acknowledgements

I would like to thank the following for supplying data. The main traps used in Fig. 1 are in parentheses. R.W. Arthur (St Osyth trap), P. Bergdahl (Kirby trap), B. Churcher, J. Clifton, P. Davey, D.G. Down, A.M. Emmet, J.B. Fisher, Dr. C. Gibson (Dovercourt trap), J.G. Green, M.J. Green, M.P. Jackson, B. Lock (Frinton trap), R. Marsh, J. Nichols, N. Odin (Landguard Bird Observatory), H. Owen, B. Pateman, M. Peck, E.G. Philp, A. Pritchard, I.C. Rose, G. Slater, G. Smith, P. Smith, M. Tarrant, M. Tunmore, D. Warner, A. Watchman, J. Wilde, S. D. Wood, and J. Young. The map was generated by using DMap by Dr A. Morton.

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Skinner, B., 1984. *Colour identification guide to the moths of the British Isles*. Harmondsworth.

Skou, P., 1986. *The geometroid moths of North Europe*. Copenhagen.

Tarpey, T. and Heath, J.J., 1990. *Wild Flowers of north east Essex*. Colchester.

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Stolen Books

I have been sent information on stolen books as follows from the Booksellers Association. The books were stolen from a private address in Harpenden, Hertfordshire on the night of 5 November 1998 while the owners were away (some antiques were also selectively stolen).

> Albin, Ebenezer – *A natural history of spiders & other curious insects.* 4to Old leather, hand-coloured plates. Fine copy 1736.
>
> Stoll, Chester – Title uncertain. (but almost certainly *Representation des Spectres, des Mantes, des Sauterelles, des Grillons, des Criquets et des Blattes)* 2 vols in one in French & Dutch – on Bugs. Hand coloured plates 4to contemp half calf. Fine copy 1780 1788.

Readers who are offered these books or who may otherwise come across them are asked to contact PC Munday of Harpenden Police on 01382 768769.– Brian Gardiner, 2 Highfield Avenue, Cambridge CB4 2AL.

Dead Alcon blue *Maculinea rebeli* (Hirschke, 1904) (Lep.: Lycaenidae) eggs in the Benasque Valley, Spanish Central Pyrenees – the truth!

During a butterflying expedition to Spain in April 1998 in the company of Dr Bernard Watts and Professor Ted Benton, I was fortunate to be introduced to Dr Miguel Munguira of the Department of Biology at the Universidad Autonoma de Madrid. Miguel has worked on *Maculinea* van Ecke 1915 butterflies in Spain and was able to answer some of my questions about *M. alcon* ([D.& S.]) and *M. rebeli,* which he considers to be two "good" species and not two subspecies of *alcon*.

It appears that the *M. rebeli* eggs that I found in the Benasque Valley during September 1996 (*Ent. Rec.* **109**: 245-250) were probably neither infertile nor killed by wet weather, and that the larvae had probably hatched quite successfully. Unlike other *Maculinea* butterflies, *M. rebeli* larvae do not exit from the top of their egg, but leave by eating out through its base and then through the *Gentiana cruciata* L. leaf to which the egg is attached (Thomas *et al.*, 1991. Basal hatching by *Maculinea* butterfly eggs: a consequence of advanced myrmecophily? *Biol. J. Linn. Soc.* **44**: 175-184.). I recall seeing holes in the base of the "dead" *rebeli* eggs that I examined, but thought they were damage caused by my tearing of the egg cases from their host leaf.

Miguel suggested also that, although very different in appearance, both the "*alcon*" populations I found in the Pyrenees (*Ent. Rec.* **108**: 301-304) were *M. rebeli*. He has mapped the Spanish distributions of *M. alcon* (generally a lowland species) and *M. rebeli* (generally a mountain species) in Munguira *et al.* (1991. Use of UTM maps to detect endangered lycaenid species in the Iberian Peninsula. *Nota Lepidopterologica* **Suppl. No. 2**: 45-55).

In the Benasque Valley, the complex *M.rebeli-G.cruciata-Myrmica* ant association (Hochberg *et al.* 1992. A modelling study of the population dynamics of a large blue butterfly, *Maculinea rebeli*, a parasite of red ants nests. *J. Anim. Ecol.* **61**: 397-409.) probably depends on the flower-rich meadows that have been formed by centuries of traditional grazing, mowing and manuring that are all part of a transhumance system. It has already been noted that chemical and mechanical intensification of grassland management has reduced floral and faunal diversity in some of the meadows in this valley (*Ent. Rec.* **109**: 245-250). During a visit to the valley in August 1998, I noticed another threat to plants and insects: many of the smaller, steeper meadows have been abandoned and successional scrub is now encroaching and replacing the grassland. Since 1994, some areas of the Benasque Valley have been designated a natural park (Parque de Posets-Maladata), which is attempting to conserve valley wildlife and traditional farming practices. Sadly the park does not include areas below 1500 m, where many of the threatened traditional hay meadows are to be found.– ANDREW WAKEHAM-DAWSON, Mill Laine Farm, Offham, Lewes, East Sussex BN7 3QB.

Larvae of *Coleophora artemisicolella* Bruand (Lep.: Coleophoridae) preparing to enter a second winter

On 25 October 1998 I sorted old larval cases of *Coleophora artemisicolella* from mugwort *Artemisia vulgaris* seed heads collected the previous autumn (Sims, 1998. *Ent. Rec.* **110**:142) for parasitised and emerged material. During this exercise I found two cases containing living larvae and many that were neither parasitised nor hatched. Consequently, some of these may also contain living larvae. I have put these outdoors to overwinter and will be interested to see if any adults emerge in Summer 1999. There are numerous reports that members of this group of the Lepidoptera can pass two winters in the larval stage but I do not recall *artemisicolella* being among these.– IAN SIMS, 2 The Delph, Lower Earley, Reading, Berkshire RG6 3AN.

THE PHASIINAE (DIP.: TACHINIDAE) OF KENT WITH A CONFIRMED HOST FOR *HEMYDA VITTATA* (MEIGEN, 1824)

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ROBERT BELSHAW'S Royal Entomological Society *Handbook* on tachinid flies (Belshaw, 1993) provided a much needed concise treatment of the British Tachinidae, particularly as regards the known distribution and hosts of the species. The subfamily Phasiinae contains just twenty-one known British species and, where the life history is known, they are all parasitoids of heteropteran bugs. Thirteen species have so far been recorded from the Watsonian vice-counties of Kent – i.e. 16 (West Kent) and 15 (East Kent) – and here I provide details of all that are known to me.

Where no recorder has been acknowledged the records are my own. Grid references which appear in brackets are my own approximations and were not given by the original collector. Tetrad (2 x 2 km square) letters follow the DINTY system. The status given by each species is based on Falk (1991). The scientific names of flowering plants mentioned are based on Clapham,Tutin and Warburg (1962) whilst the nomenclature of bugs follows Kloet and Hincks (1964).

Cinochira atra Zetterstedt, 1845

This small black fly was listed by Yerbury (1908) under the name *Melanophora atra* from Bearsted (TQ75/TQ85). Later, during the Blean Woods (TR16) survey in 1964, further specimens were obtained by D.M. Ackland between 7 and 11 September. Chandler (1976) referred to one taken in a house at Bromley (TQ46) on 18 August 1966. The latter has recently informed me that he also took the species at Pett's Wood, Chislehurst (TQ46) on 23 September 1974.

26 September 1983 Claypits Wood, Dunkirk TR0759 swept over leaf litter in woodland on clay; 24 June 1989 Hurst Wood TQ9348; 30 July 1992 Motney Hill, Rainham TQ825677 swept in *Phragmites* swamp; 28 August 1994 Mereworth Woods TQ663553; 26 May 1997 Foal Hurst Wood TQ6544 swept from coarse vegetation in dense scrub; 11 June 1997 Covert Wood TR182494 along damp shady ride; 12 July 1997 Yalding Fen TQ683499 swept from vegetation growing beneath willows *Salix* spp.

The larvae of *Cinochira atra* seem to be dependant on lygaeid bugs. Eyles (1962) found it to be an occasional parasite of *Scolopostethus thomsoni* Reuter, 1874, *S. decoratus* (Hahn, 1833), *Drymus sylvaticus* (Fabricius, 1775) and *D. brunneus* (Sahlberg, 1848). These bugs inhabit a variety of situations. *S. thomsoni* is readily found by sweeping nettles, *S. decoratus* by grubbing around heather and the *Drymus* species by sieving litter and pitfall trapping. Whilst Belshaw (1993) cited Chandler's impressions that the fly is characteristic of low vegetation in woodlands, my records from Motney Hill and Yalding fen add marshland (coastal and inland respectively). *Cinochira atra* was not awarded a status by Falk (1991) although Dr A.C. Pont (*pers.comm.*) believes that it should currently be regarded as notable.

Cylindromyia interrupta (Meigen, 1824)

First recorded from the county in 1896 by A.J. Chitty on the basis of a male taken at Doddington (TQ95) (Smith and Bates, 1956), it was some fifty years before the next specimen was taken by H.W. Andrews on 30 June 1945 at Eynsford (TQ5365). Uffen (1961) stated "... was numerous amongst mixed vegetation between regenerating aspens at Ham Street, Kent 14.vi.1958" (TR0033).

28 May 1988 Shorne Woods Country Park TQ684702 1 male taken by sweeping a *Juncus* dominated damp flush; 3 August 1996 Birchett Wood, Orlestone Forest TQ987359 1 female taken by general sweeping along an open ride; 1 June 1997 Mereworth Woods TQ644556 1 male obtained by sweeping low vegetation in a woodland clearing.

Andrewes (1966) recorded *Cylindromyia interrupta* from a sallow and birch copse at Barnridge, Wilstshire on 11 June 1964 and 3 July 1965 whilst Edwards (1956) recorded it in the more open parts of Bottom Wood, Hertfordshire on 9 August 1955. My records support the view that the fly is to be found in woodland clearings. Dr A.C. Pont (*pers.comm.*) has assessed the current status of the species to be notable and says that it is a species of rough grassland and open scrub.

Belshaw (1993) cited palaearctic rearing records from the pentatomid bug *Dolycoris baccarum* (Linnaeus, 1758) for the related *C. brassicaria* (Fabricius, 1775) and this may well apply to *C. interrupta* since this bug was abundant in each of the three sites where I found the fly. Southwood and Leston (1959) state that the bug "occurs commonly in the flowery margins of woodlands" and this habitat also matches my records for the fly.

Cylindromyia interrupta is another species not assigned a status by Falk (1991) and which Dr Pont has classified as notable.

Gymnosoma nitens Meigen, 1824 (RDB1)

Gymnosoma nitens was added to the British list by Clark (1958) on the basis of a female taken at Happy Valley, Boxhill, Surrey on 8 July 1956. Belshaw (1993) repeated this as the only recorded site for this species. Plant, in Plant and Smith (1996) referred to the capture of a single specimen on 2 July 1995 at Richborough Power Station near Sandwich (TR3362) in East Kent.

Some ten years prior to this on 20 July 1985 I encountered large numbers of the species at Lydden Hill near Dover TR252462. Ten specimens (four females and six males) were retained from swarms swept mainly from Hoary Ragwort *Senecio erucifolius* L. at about 19.30 hours. There had been substantial rain earlier in the afternoon (cf. Plant's statement "The fly was swept at around mid-day in a light drizzle...") although at the time the vegetation had dried out. The site at Lydden Hill is a chalk cutting beside the A2 which has been heavily seeded by the county highways department. A further female was discovered at Trosley Country Park TQ6461 at about 12.30 on 20 July 1996. The specimen was seen, and captured, feeding from a central floret of Hogweed *Heracleum sphondylium* L. in dappled shade and the weather was hot and sunny. Lydden Hill and Trosley Country Park both fit with Plant and Smith's observations that the fly is to be found in predominantly calcareous regions.

Clark (1958) cited the following heteropteran hosts for *Gymnosoma nitens*: *Aelia acuminata* (Linnaeus, 1758), *Eurygaster testudinaria* (Geoffroy, 1785), *Sciocoris cursitans* (Fabricius, 1794), *Piezodorus lituratus* (Fabricius, 1794), *Stollia (= Eysarcoris) fabricii* (Kirkaldy, 1904) and perhaps *Spathocera dahlmanni* (Schilling, 1829). Belshaw (1993), however, listed only *Sciocoris cursitans* and the non-British *Sciocoris helferi* (Fabricius) as hosts.

Gymnosoma rotundatum (Linnaeus, 1758) (RDB3)

There is a single specimen of *Gymnosoma rotundatum* in the Dale collection at the Hope Department, Oxford without date from Swanscombe (TQ57). This seems to be a species of dry areas on downland and heathland and hence could be found elsewhere in the county, especially if "*Palomena* spp" are hosts as stated by Belshaw (1993).

Hemyda vittata (Meigen, 1824) (RDB3)

Added to the British list on the basis of a male found resting on a wild strawberry flower at the edge of a clearing in Whippendell Wood, Watford, Herts on 12 May 1956 by S.D. Barfoot (Barfoot, 1957). He cited F.I. Van Emden's information that the species had been reared several times on the continent from the pentatomid bug *Arma custos* Hahn and this fact was repeated by Smith (1989) and Belshaw (1993). The latter also questioned *Troilus luridus* as a host.

On 26 May 1987 I swept a single female of *Hemyda vittata* from young Silver Birch *Betula pendula* Roth trees around one of the pits in Ham Street Woods NNR TR0033 and this remained my only record until recently. Whilst generally recording insects at Covert Wood near Canterbury TR182494 on 11 June 1997 a specimen of the pentatomid bug *Troilus luridus* (Fabricius, 1775) was swept. As this is not an insect which I frequently see it was retained alive in an individual tube until it could be processed and added to the reference collection. On 13 June the bug was found to have died and a chestnut-brown puparium measuring about 5.5mm long was noted attached to the bottom of the tube. This was retained and on 28 June a male *Hemyda vittata* emerged. The larval mouthparts were recovered from the cap of the puparium and part of these is illustrated in figure 1. The posterior spiracles are depicted in figure 2.

Litophasia hyalipennis (Fallén, 1815) (Extinct).

Still only known in Kent from 1 male taken on 9 August 1987 along a track at Solomon's Farm, near Kingsnorth TQ7874 and 1 female taken on 9 August 1991 in a chalk quarry at Northfleet TQ630742 (Clemons, 1992). Dr J.W. Ismay has since found it in South Essex and DrA.C.Pont (pers.comm.) has downgraded it to RDB2 status.

Lophosia fasciata Meigen, 1824 (Notable).

Wainwright (1940) recorded specimens from Ham Street (TR0033) and Soakham Down (TR0349) and these are preserved in the collections of the Natural History

Museum, London with the dates 5 August 1938 and 6 August 1938 respectively. A further specimen was taken by K.C.Side at Ellenden Wood TR16B on 6 May 1974. Allen (1987 and 1992) recorded rearing the species on 2 July 1986 from a specimen of the hawthorn shieldbug *Acanthosoma haemorrhoidale* L. taken at Oxleas Wood SSSI (TQ4475) on 13 June 1986.

To date my sole encounter with this species rests on a female found dead in a spider's web along a chalk track beside Park Wood, Chilham TR042524 on 25 July 1982.

Phania funesta (Meigen, 1824)

This seems to be by far the the most widespread of the local Phasiinae although Day (1948) regarded it as rare and, of two recorded sites, had apparently seen details only of J.W. Yerbury's specimens from Gravesend (TQ67) taken in 1907 and 1908. The pioneer British dipterist G.H. Verrall stated (1912) "*Weberia thoracica* is not very uncommon, but I have seen only one specimen of *W. curvicauda* which was taken by Col. Yerbury at Gravesend on June 27th, 1908". There are further specimens of Yerbury's in the Natural History Museum, London from Gravesend dated 2 August 1907. H.W.Andrews recorded it widely in vice-county 16 between 1912 and 1939 thus: 18 May 1912 Thames Marshes (TQ5675); 1 August 1931 Thames Marshes (TQ5675); 11 June 1932 Dartford (TQ57); 22 May 19343 Thames Marshes (TQ5675); 11 July 1935 Crayford (TQ57); 5 August 1935 Eynsford (TQ5365) 14 May 1938 Wrotham (TQ6159) and 15 July 1939 Allhallows (TQ8378). C.J. Wainwright encountered it at Oare (TR0062) on 3 August 1937. Fonseca (1951) recorded it from Sholden near Deal (TR3552) on 5 August 1950 and stated "In the Sholden district, also, a small patch of common chamomile (*Anthemis nobilis* L.) was attracting large numbers of the curious little Tachinid *Weberia pseudofunesta* Villeu. Males predominated but several females were found amongst the catch, the first I had seen of this sex." The collections in the Natural History Museum, London contain two specimens labelled "Sholden E. Kent 5.viii.1950" and "Sholden E. Kent 6.viii. 1950" in Fonseca's handwriting plus a further 22 bequeathed in 1988 with the printed data "Sholden Kent. E. 5-11.viii.50". There is also a specimen with the printed label "14.viii.50 St. Margaret Kent. E.E.A. Fonseca". A series of specimens from Hythe (TR13) in the G. Waller collection at Maidstone Museum and Art Galleries bears the dates 13 June 1976 and 1 June, 13 June, 16 June, 16 July, 2 August, 9 August, 11 August and 18 August 1977. In the card index at Maidstone Museum and Art Galleries there is a single record pertaining to K.C. Side from Cliffe Marshes TQ77J on 19 July 1974.

11 July 1982 Murston TQ922646; 17 July 1982 Murston TQ9164; 17 June 1983 Stonelees TR338623; 27 July 1983 Cliffsend, Ramsgate TR3564; 2 June 1984 Murston TQ922646; 6 August 1984 Canterbury Golf Course TR174593; 26 July 1987 Kingsnorth TQ817724; 1 August 1987 Stoke TQ838754; 9 August 1987 Solomon's Farm, near Kingsnorth TQ7874; 17 August 1987 Kingsnorth TQ796722; 19 August 1987 Kingsnorth TQ8272; 21 May 1988 Sladden Wood

TR258428; 24 June 1989 Lenham Heath sandpit TQ9149; 9 August 1991 Northfleet TQ630742; 4 June 1993 Hale Street ponds TQ6749; 26 June 1993 Old Park, Canterbury TR168589; 6 August 1993 Bingley's Island, Canterbury TR142576; 29 May 1995 Fordwich TR187603; 7 July 1996 Church Marshes, Milton TQ9165; 12 July 1997 Yalding Fen TQ683499; 16 August 1997 Crossness Nature Reserve TQ4980.

Belshaw (1993) gave little information regarding the biology of *Phania funesta* other than that there is a European record from the cydnid bug *Legnotus limbosus* (Geoffroy, 1785). Southwood and Leston (1959) stated that *Legnotus limbosus* feeds on goosegrass, lady's bedstraw and other bedstraws and that "it occurs on flowery banks, in dry grassy places and in the top soil of dry earth banks, apparently preferring a fine sand.". The bug is of widespread distribution in Kent, although I have personally taken it only in the driest of localities. Whilst the majority of my localities are dry grassland the occurrence of *Phania funesta* in damp sites such as at Hale Street Ponds and Yalding Fen could signify that it develops in other bugs.

Phasia thoracica Meigen, 1924 (RDB3)

Wainwright (1928) mentioned that the species was taken in Mains Wood, Herefordshire by J.H. Wood and at Guestling, Sussex by E.N. Bloomfield and these records were repeated by Van Emden (1954). Belshaw (1993) added Abbots Wood, Hants and Blean, Kent (TR10). I have been unable to trace details of the latter record although Dr A.C. Pont has informed me that it was taken from the National Nature Reserve in 1966. Despite the statement by Verrall (1912) mentioned in reference to *Phania funesta Phania thoracica* is not at all common nationally and thus his opinion on its abundance was most likely based on a misidentification.

Phasia hemiptera (Fabricius, 1794)

Belshaw (1993) referred to at least 50 records having been accumulated during the preparation of his Handbook although these must in part be due to the impressive appearance of the male which renders it noticeable to general naturalists. Certainly the collections of the Natural History Museum in London contain a long series of this fly, but from relatively few localities.

Curtis (1823-1840) stated that it was "taken I believe near Darent in Kent" and since then there have been few sightings in the county. In the Natural History Museum, London there are four males collected by R.B.Benson from Ham Street Woods (TR0033) between 3 and 6 July 1946, whilst in the G.Waller collection housed in Maidstone Museum and Art Galleries there is a single male with the label "River near Dover 30 July 1946 on umbelliferae" (TR2843). The card file index at the latter institution contains a single record submitted by Mr A.V. Measday and dated 25 May 1986 from Tunbridge Wells TQ53U. More recently at the annual exhibition of the Kent Field Club on 9 November 1996 MrJ.S. Badmin showed a male taken in his garden at Downwell, Selling (TR085539) on

22 August 1996. There is anecdotal evidence from Mr M. Brown that it has occurred at Hoads Wood near Ashford (TQ9542).

21 July 1995 Downwell, Selling TR085539 1 female on flowers of *Bupleurum fruticosum* L.; 20 July 1997 Iden Croft Herbs, Staplehurst TQ792424 1 male feeding on flowers of *Mentha* sp.; 2 August 1997 Dering Wood, Pluckley TQ89954450 1 male flying amongst low bramble foliage.

From the paucity of local records *Phasia hemiptera* is largely to be found in or around clearings in ancient wooded districts.

Phasia obesa (Fabricius, 1798)

Another species which is not at all abundant in Kent. H.W. Andrews recorded it from Farningham (TQ5467) on 27 August 1927 whilst Allen ((1963) referred to its sporadic occurrence in his garden at Blackheath Park (TQ4075). Mr P.J. Chandler (pers. comm.) encountered it in an arable field at Oakley Farm, Bromley (TQ44166) and in a larch plantation at Scrogginhall Wood, Bromley (TQ413673) on 16 September 1967 and 11 September 1971 respectively. In the card index at Maidstone Museum and Art Galleries there are just two other records both from the fieldwork of K.C.Side: 7 July 1974 New Hythe TQ75E and 23 August 1974 nr. Meopham TQ66H.

21 August 1994 Vinters Park LNR TQ7756 a few males and females swept from the flowers of *Matricaria* sp.; 28 August 1994 Roadside Wood TQ647552 numerous specimens of both sexes swept from ling *Calluna vulgaris* (L.) Hull. in open, sandy heathland.; 1 June 1997 Mereworth Woods TQ644556 1 male; 19 August 1997 Ditton Court Quarry TQ7517 several males observed feeding on the flowers of tansy *Chrysanthemum vulgare* (L.) Bernh. and garden golden rod *Solidago canadensis* L.

Allen (1963) recorded *Phasia obesa* as a parasite of the pentatomid bug *Neotiglossa pusilla* (Gmelin, 1789) whilst Belshaw (1993) listed a range of other hemipteran hosts, some of which are doubtful. The local records suggest that the fly is characteristic of dry grassland.

Phasia pusilla Meigen, 1824

This small, black fly was recorded from Gravesend (TQ67) by Yerbury (1908) and subsequently from other localities in the west of the county by H.W. Andrews i.e. 13 July 1920 Eltham (TQ4374); 9 August 1922 Dartford (TQ57); 11 June 1927 Bexley (TQ4774); 27 August 1927 Farningham (TQ5467); 28 July 1930 Farningham (TQ5467) and 11 August 1934, 27 June 1943 and 30 June 1945 Eynsford (TQ5365). Allen (1963) stated that it occurred sporadically in his garden at Blackheath Park (TQ4075). In the collections of the Natural History Museum in London there is a single specimen taken at Eastling Wood (TR3047) by E.A. Fonseca on 3 August 1951. Mr P.J. Chandler (*pers. comm.*) encountered it in an arable field at Oakley Farm, Bromley (TQ44166) on 16 September 1967. Further records obtained from the Maidstone Museum card index are 1 August 1976 Shorne TQ67V K.C. Side; 3 September 1990 Wrotham Water TQ6260 P.J.Hodge and 4 August 1992 Canon Heath TQ6957 E.G. Philp.

27 June 1983 Murston TQ914644 dry derelict grassland; 10 August 1983 Murston TQ922653; 9 August 1992 Angley Wood TQ7636 along sandy woodland ride; 12 September 1992 Crayford marshes TQ5378 coastal grassland; 3 July 1993 Eccles Pit TQ7261 dry chalk pit; 1 June 1994 Mereworth Woods TQ663553 grassy ride; 19 June 1994 Lullingstone Park TQ5164 dry chalk grassland; 21 August 1994 Vinters Park LNR TQ7756 open parkland; 28 August 1994 Mereworth Woods TQ663553; 28 August 1994 Roadside Wood TQ647552 sandy heathland; 9 June 1996 Birchett Wood TQ987359 open ride in wood; 7 July 1996 Church Marshes, Milton TQ9165 dry coastal grassland; 14 July 1996 Angley Wood TQ7636 along sandy woodland ride; 14 May 1997 Denge Wood TR106528 dry chalk grassland; 19 May 1997 Hargate Forest TQ5737 open ride in dry woodland; 19 May 1997 Hargate Forest TQ5736 open ride in dry woodland; 1 June 1997 Mereworth Woods TQ644556 clearing in chestnut coppice; 15 June 1997 Ditton Court Quarry TQ7157 dry grassland in disused ragstone quarry; 2 September 1997 Birchett Wood TQ987359 on flowers of golden rod *Solidago virgaurea* L.

Phasia pusilla is recorded as a parasite of the bugs *Cydnus* (Cydnidae) and *Chilacis* (Lygaeide) by Van Emden (1954) and *Stygnocoris fuligineus* (Geoffroy, 1785) and *S.pedestris* (Fallén, 1807) (Lygaeidae) by Eyles (1962). The fly is locally a species of dry grassland and dry woodland.

Subclytia rotundiventris (Fallén, 1820) (RDB3)

I obtained a single male of this species by sweeping bracken *Pteridium aquilinum* (L.) Kuhn beneath silver birch *Betula pendula* Roth during a Kent Field Club excursion on 5 July 1997 to Hothfield Common LNR near Ashford TQ97054575. The usual British hosts are the acanthosomatid bugs *Elasmostethus interstinctus* (Linnaeus, 1758) (Allen, 1966) and *Elasmucha grisea* (Linnaeus, 1758) both of which are widespread and often abundant on birch.

Acknowledgements

In the preparation of this paper I would like to extend my thanks to the following gentlemen:

Mr A.A. Allen for providing copies of notes, papers and details of his experiences with these flies from his home region of north-west Kent, Dr E. Jarzembowsky for permission to extract data from the collections and record card index housed at Maidstone Museum and Art Galleries, Mr K.G.V. Smith for providing copies of some of his notes and to Mr N. Wyatt for allowing access to the collections of the Natural History Museum, London. Dr P.J. Chandler kindly read through a draft of this paper and drew my attention to the data in Wainwright's works. Dr A.C. Pont generously provided an extract from his unpublished review of the rarer calyptrate diptera.

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Figure 1: *Hemyda vittata*: part of cephalopharyngeal skeleton from puparium.

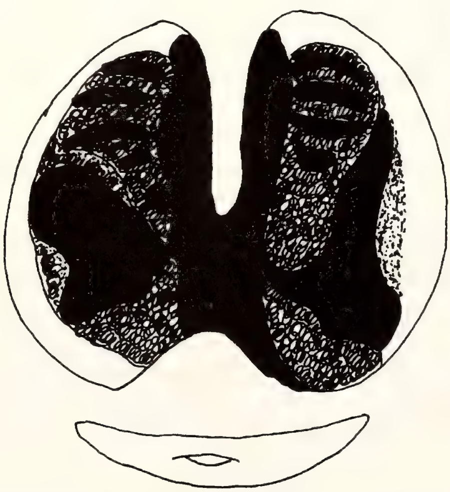

Figure 2: *Hemyda vittata*: posterior spiracles of puparium.

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Bactrocera cucurbitae Coquillett (Dip: Tephritidae): first known British capture at large

On the night of 20 June 1998, a fly occurred here at m.v. light which was quite unknown to me; even its family was far from obvious, and I strongly suspected that it must be an alien. From a rough description Mr P.J. Chandler suggested a species of *Bactrocera* and sent a figure of *B. cucurbitae,* a common pest-species of hot countries breeding in cucurbitaceous fruits (cucumbers, melons, etc.). Obviously such a species could easily be introduced into Britain with produce, but there appears thus far to be no record. The fly was subsequently identified beyond doubt by Mr I.M. White, the Tephritid specialist, as the above species. A few decided differences between the specimen and the figure mentioned (as regards the pale thoracic markings and certain other points) were explained by difference of sex and the variability so often shown by an abundant species. *B. cucurbitae* will doubtless be found here again in the open before very long; it may already have occurred in warehouse conditions. I am most grateful to the two persons named for their kind help.– A.A. ALLEN, 49 Montcalm Road, Charlton, London SE7 8QG.

Leiodes picea (Panzer) (Col.: Leiodidae) and other leiodids from Upper Strathspey

L. picea is one of the less common members of the genus, known in Britain only from Scotland and northern England with few recent published records. It may be of interest that I have come across the species in upper Strathspey on four occasions in the last few years as follows:-

Abernethy Forest, VC 96 Easterness, OS grid reference NH9618 – 1 ex., x.86 in flight interception trap, edge of pine wood;

River Nethy, VC 95 Elgin, NH9922 – 1 ex. 2.vii.91 & 1 ex. 27.ix.91, in sand on bank of river;

Dorback Burn, VC 95 Elgin, NJ0717 – 1 ex. 25.viii.98, under stone on sand on bank of river.

Other members of the genus also have turned up at the River Nethy site, sometimes in numbers. Thus, pitfall traps set during a two-week period ending 1.viii.92 caught 248 *Leiodes* specimens comprising 194 examples of *obesa*, 15 examples of *ferruginea* and 39 examples of *rufipennis*. In addition, there were 24 examples of *Liocyrtusa minuta*. The trapped beetles had probably developed in subterranean fungi growing at the spot for, on a visit to the site on 2.vii.91 with my good friend Richard Lyszkowski, several fruiting bodies of a *Glomus* species were found beneath the surface of the sand. Some of these fruiting bodies held beetle larvae and, from one, an adult *Liocyrtusa minuta* emerged about two weeks later. The association of a leiodid larva with this type of fungus had previously been noted by my friend who reared an example of *L. rufipennis* from a *Glomus* fruiting body found in sand at the edge of a small river higher up Strathspey (Lyszkowski, *Ent. Record* **107**: 39, 1995). – J.A. OWEN, 8 Kingsdown Road, Epsom, Surrey KT17 3PU.

NEW RECORD OF MUSHROOM PEST AT 5500 FEET ALTITUDE IN KUMAON HILLS OF CENTRAL HIMALAYA

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MUSHROOM IS an alternate source of good quality protein (20-35% dry weight basis) which is higher than in vegetables and fruits. It contains two essential amino acids, lysine and tryptofan, which are deficient in cereals, vitamin C and vitamins of B complex group (thiamine, riboflavin and niacin), Potassium, Phosphorus, Sodium and Iron. Furthermore it is low calorie food with very little fat. Besides, it has medicinal values. Out of 2000 species of edible mushrooms about 80 species have been grown experimentally and 20 species are cultivated commercially. Three varieties *viz.*, white button, oyster and paddy straw, are cultivated in India in commercial scale (Chadha and Sharma, 1995). Button mushroom (*Agaricus bisporus*) and oyster (*Pleurotus sajor caju*) are two important widely and commercially grown in hilly areas of Uttar Pradesh.

Mushrooms are infested by 14 insect and three non-insect pests both in temperate and tropical conditions in India. These are six dipteran flies *viz.,* Sciarid flies *Bradysia paupera* Toum on white button mushroom in Himachal Pradesh (Shandilya *et al,* 1975), *Bradysia tritici* Coq on white button mushroom in Punjab (Sandhu and Brar, 1980) and *Lycoriella auripila* Winn on oyster mushroom in West Bengal (Chakravarty *et al,* 1987); Phorid flies – unidentified phorid flies on white button mushroom in Himachal Pradesh (Shandilya *et al,* 1975), *Megaseliya agarica* Litner (= *Megaselia sandhui* Disney) on button mushroom in Punjab (Disney, 1981) and *Megaselia* sp. to oyster mushroom in Tamil Nadu (Krishnamoorthy *et al,* 1991); Cecid fly larvae of *Heteropezina cathistes* on oyster mushroom in Haryana (Johal *et al,* 1992); four collembolan insects *viz., Lepidocyrtus* sp. and *Xenylla* sp. on beds of button mushroom in Delhi (Bahl *et al,* 1981), *Lepidocyrtus* sp. to button and oyster mushrooms in Himachal Pradesh (Thapa and Seth, 1983), *L. cyaneus* Talb at Udaipur-Rajasthan (Bhandari and Singh, 1983) and *Seira iricolor* Yoshii and Asharaf on oyster mushroom and tropical mushrooms (Gill and Sandhu, 1994); three Coleopteran insects *viz., Staphylinus* sp. on oyster mushroom in Kerala (Asari *et al,* 1991), *Cyllodes whiteii* sp.n., on oyster mushroom in Chandigarh (Johal *et al,* 1992) and *Hexarthrius davisoni* Waterh on oyster mushroom (*P. ostreatus*) at 9000 feet altitude in Garhwal hills of Central Himalaya (Arif *et al,* 1991); one unidentified lepidopteran insect in Himachal Pradesh (Thapa, 1977; Thapa and Seth, 1982), *Bakerdinia* sp. on white button mushroom in Punjab (Gill *et al,* 1988), *Tyrophagous putrescentinae* Schrank in West Bengal (Anon, 1974), in Delhi and Himachal Pradesh (Bahl *et al,* 1981 and Thapa and Seth, 1982). Larvae of *Sciara* sp. *orientalis* Blum (Sciaridae) were observed damaging mycelium and stalk of button mushroom (*Agaricus bisporus*) grown in wooden cases and oyster mushroom (*Pleurotus sajor caju*) grown in polythene bags and larvae of Staphylinid beetles on mycelium and gills of button mushroom in Defence Agricultural Research Laboratory, Pithoragarh situated at 5500 feet in Kumaon hills of Central Himalaya. Larvae of sciarid flies

were cryptic amongst the mycelium and thus it was not easy to isolate them unless they moved under the microscope. The damage is noticed after the appearance of adult flies, which are poor fliers. Flies are dull black in colour with 1.5-2.0mm size. The damage by staphylinid beetles was noticed after hole formation in gills and appearance of adult beetles.

The heavy infestation of Sciarid flies to button and oyster mushroom reduces the size and gives an unattractive brownish colour to the mushroom body. Adult flies usually live under loose soil and side walls of wooden cases whereas during watering the flies can be seen apparently on mushroom body. This seems to be the first record of *Sciara* sp. *orientalis* on mushroom at 5500 feet in Kumaon hills of Central Himalaya.

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Noteworthy Scottish Lepidoptera in 1998

During the course of contracted survey work on the Ministry of Defence's Kirkcudbright Training Area in south-west Scotland, m.v. traps were operated on a monthly basis at a number of locations across the site from May to September 1998. In spite of the constant wet and cold weather that seemed to follow me around during that particular year, a list of 189 species was obtained. Several of these appear to be worthy of placing on record; all were encountered adjacent to ancient broad-leaved woodland next to the sea at Abbey Burn Foot, at OS grid reference NX 7444. I take this opportunity to remind readers of the existence and considerable value of the Scottish Insect Records Index (SIRI) at the National Museums of Scotland in Edinburgh (see Shaw, 1987. *Ent. Rec.* **99**: 37-38). This powerful research tool lists all literature references for Scottish insects, currently to the end of 1995 and should always be consulted when discussing scarce or potentially new Scottish species. My interesting moths were as follows:

Tebenna micalis (Mann) (Choreutidae)

Formerly confused with *T. bjerkandrella*, which is not British, this is normally an extremely rare immigrant from Iberia. Three examples were netted from amongst several dozens flying in early morning sunshine on the south-facing coastline on 21 June 1998; they represent the first records of this species for Scotland.

Tethea ocularis (L.) ssp. *octogesimea* (Hb.) (Thyatiridae) – Figure of Eighty

A single example came to light on 10 July 1998. Interrogation of SIRI indicates that there appear to be only two previous records of this species in Scotland. Mr G.V. Bull recorded larvae (as *Palimpsestis ocularis*), as well as larvae of the easily confused *Tethea or* (D.&S.), at Rannoch (Perthshire) between 21 and 31 July 1936 (*Proc. South London ent. Nat. Hist. Soc.* **1936/37**: 34 & 35). This seems a rather unlikely locality (although *Tethea or* (D.&S.) is locally frequent in that general region). The location of any bred adults from these larvae is not known. More recently, Mark Shaw of the National Museums of Scotland found a larva at Rowardennan during 1989 and an adult moth was apparently reared from this. No doubt Mark's disgust at rearing a nice adult moth rather than one of his favourite parasitoids is the reason why the present whereabouts of the specimen are unknown! Mark has, accordingly, suggested, with apologies, that his record should be regarded as unconfirmed. *T. ocularis* has never been captured in the Rothamsted light trap at Rowardennan (Adrian Riley, *pers. comm.*).

Euphyia biangulata (Haw.) (Geometridae) – Cloaked Carpet

A single, freshly emerged specimen arrived in the light trap on 5 July1998. I had initially assumed that this was a new species for Scotland, perhaps originating from the resident population in the northern part of the Isle of Man, some 50 kilometres to the south-west. However, after I had rather too hastily exhibited it as such at the Annual Exhibition of the British Entomological and Natural History Society, Keith Bland very kindly pointed out to me that there were two earlier Scottish records referred to in SIRI given (both as *Cidaria picata*) in *Trans.*

Dumfries & Galloway Nat. Hist. Soc. **1862-3**: 61 (for VC 73 – Kirkcudbrightshire) and **1918-9**: 164 (for VC 74 – Wigtownshire). I have not yet been able to locate a copy of the 1918-9 volume to elaborate on the Wigtownshire record, but that for Kirkcudbrightshire reads "Terregles; very rare". Terregles is just west of Dumfries, OS grid reference NX 9277, about 40 kilometres north-east of Abbey Burn Foot. My 1998 record thus appears to be only the third record of the species for Scotland, the only recent one and, perhaps, the only reliable one.

Chloroclystis chloerata Mabille (Geometridae) – Sloe Pug
A single male arrived at the light on 20 June 1998. It identity was confirmed by examination of its genitalia. There are no literature records of this species in SIRI to the end of 1995 and so the moth is assumed to be new for Scotland.

Agrotis puta (Hb.) ssp. *puta* (Hb.) (Noctuidae) – Shuttle-shaped Dart
Two or three examples representing both males and females were attracted to the m.v. light on 20 June 1998 and are evidently the first confirmed records for this species in Scotland. Not realising the significance of this record at the time (the moth reaches the hundreds during a good year in my Hertfordshire garden!) I did not retain any voucher specimens. There appears to be only a single previous Scottish record of this species, the validity of which is open to debate. This relates to a record at Kirkconnel Moss (now Kirkconnel Flow National Nature Reserve), Dumfries-shire given by William Lenonn (*sic*) in *Trans. Dumfries & Galloway Nat. Hist. Soc.* **1862 - 63**: 53-63 (the record is on page 57). This same record is referred to by Herbert Jenner Fust junior in *Trans. ent. Soc. Lond.* **1868**: 437 & 475 as "record doubtful – south-west lowlands subprovince". The record in Barrett (1896. *Lepidoptera of the British Isles* **3**: 301) also refers to this Kirkconnel record. Kirkconnel is about 34 kilometres north-east of my Abbey Burn Foot site.

Hydraecia petasitis Doubleday (Noctuidae) – Butterbur
A few moths were attracted to m.v. on 15 August 1998, the trap having been deliberately placed in the centre of a very large expanse of the larval foodplant in order to discover if this species was present. The moth is very sparsely recorded in southern Scotland, but in my view this may be rather more a function of under-recording than it is a reflection of reality. Nevertheless, this appears to be a new record for VC73 – Kirkcudbrightshire.

It seems rather surprising that so many interesting moths could be generated from such a short overall list of species, particularly as all the nights selected (from afar) for the survey work were cold and rainy. Clearly there are likely to be more discoveries to be made in this hopelessly under-recorded region and anyone passing through on their way to catch the Irish ferry from Stranraer might do far worse than leave a day early and spend a night with the moth-trap in Kirkcudbrightshire.

I am most grateful indeed to Jim McCleary, Lepidoptera Recorder for the Dumfries and Galloway region, for his invaluable comments on my list of species recorded and in particular for pointing out to me the potential significance of the *Agrotis puta* and *Tethea ocularis* records. Thanks also to Keith Bland for kindly pointing out the error of my ways concerning *Euphyia biangulata* and for supplying me with the literature references for that species in Scotland. Mark Shaw provided considerable assistance in checking the Scottish Insect Records Index for previous records of all the species discussed and for obtaining the appropriate literature references for me. I am also grateful to David Carter at the Natural History Museum, London, for locating one of the required literature references.– COLIN W. PLANT, 14 West Road, Bishops Stortford, Hertfordshire CM23 3QP.

New species of Lepidoptera for the Isle of Wight

On 16 May 1998 Brian Warne caught an example of *Hadena comta* (D.&S.) at his light trap at Binstead. This species at present has extended its range westwards to Gloucestershire and northwards to Lincolnshire and is new to the Isle of Wight. Whether this species originated in this country as a result of migration or importation is a question which remains unresolved. On 26 August of the same year David Biggs found a larva of *Mompha sturnipennella* (Tr.) (= *nodicolella*) (Fuchs.) in a galled seed pod of *Epilobium angustifolium* at Bouldnor; this emerged on 11 September. This species is new to both Hampshire and the Isle of Wight. On 1 September I took an example of the rare migrant *Thaumetopoea processionea* (L.) at Freshwater – new to both Hampshire and the Isle of Wight. A second example was recorded on 6 September.

I am grateful to Barry Goater for the identification by dissection of the following two species which were taken at Freshwater and are both new Vice-County records. *Eupithecia satyrata* (Hb.) was recorded on 5 June 1968 and two *Oligia versicolor* (Borkh.) were taken, one each on 1 and 6 June 1997. I have two specimens which are probably this species dated 14 and 15 June 1962 in my collection, both taken at Freshwater.– S.A. KNILL-JONES, 2 School Green Road, Freshwater, Isle of Wight PO40 9AL.

Who needs a trap when a hamster will do – or – Pyralids ate my pasta

Do you ever wonder how uncommon moths are trapped, without resorting to spending hundreds of pounds on a Robinson or Skinner trap. At last the secret can be revealed. Simply get your children a hamster and then buy its food loose from your friendly pet supermarket. Place in a warm cupboard and then wait for your children to ask you what those strange little moths are which appear to have infested their bedroom. By this time, because you won't have fought your way across their bedroom floor for some time, the "little moths" will have made home in other parts of the house. The kitchen would seem to be a good place – it's warm and there's a good supply of food. How about that flat pasta you bought the last time you were in France, or the brown rice in the same cupboard? This infestation by the Indian Meal Moth *Plodia interpunctella* (Hb.) lasted from midsummer 1997 to midsummer 1998 – in spite of throwing away all the stored pasta, rice and hamster food. The rest of

the family were singularly unimpressed by the fact that this moth was uncommon and they ought to be pleased to have such a close acquaintance with it. All now went quiet on the domestic pyralid front until in September my wife decided to cook an apple crumble and opened the porridge oats, which had been tightly sealed with a tie tag (we'd learned our lesson after the meal moth, keep your dried food tightly wrapped – or so we thought). Shortly afterwards I found an interesting pyralid on the living room ceiling. This time it was the Mediterranean Flour Moth *Ephestia kuehniella* (Zell.). Closer examination of the oats revealed three dead flour moths inside. I've never seen my son so closely inspect a packet of porridge oats when we purchased a replacement – his powers of observation are becoming finely honed. We've now re-examined the dried foods in the cupboards and await the next pyralid with interest! I am very grateful to Ron Parfitt for helping me with the identification of these moths. - Rob Edmunds, 32 Woodcote Green, Calthorpe Park, Fleet, Hampshire GU13 8EY.

Hazards of butterfly collecting – You don't want to see my mudflies, Ghana August 1996

"Naw .... you don't want to see my *mudflies*!", he said in a Texan drawl. He was one of fourteen American participants on a butterfly tour organised to Ghana in 1996 by *Expedition Travel*. I was the scientific tour leader. Years ago I had promised the Ghana Wildlife Department to pilot ecotourism in Ghana. I had given the promise to establish my street credibility, which was by now just fine, but the commitment caught up with me – "and we have promises to keep". "I do want to see your *mudflies*", I said. Seeing material caught by other people is a useful way of maximising information, and his mudfly might be my sensational record.

We were in Kakum National Park, a wonderful forest in Ghana, that has become a beacon for nature conservation in West Africa. When I began my West Africa butterfly project in 1993, no-one could have directed you to the park. Last year it had more than 40,000 paying visitors. Thanks to a number of donors, coordinated by USAID through *Conservation International* it has been possible to construct a fine reception centre and a truly wonderful canopy walkway. We were sitting in the Jungle Restaurant – one of the few places in Africa where you can come after a hard walk in the forest and have an ice-cold beer: "So let's look at those *mudflies*". And . . . yes . . . they were indeed largely *mudflies*. BUT . . . the very last envelope contained a tiny Polyommatine Lycaenid. Nothing remotely like it had ever been recorded from West Africa, but it was clearly a member of the genus *Eicochrysops*, and very similar to some Ethiopian and Kenyan semi-montane species. A wet lowland rainforest like Kakum is the last place where such an *Eicochrysops* was to be expected, but stranger things happen. A new species? Could well be!

He was sure he had caught it along the grassy verges of the road, just here. I called in the whole team, showed them the butterfly, the only one in the area with a deep blue upperside and a white underside with fine black markings. They spent two hours sweeping the area. No more were caught. Anyhow, the single male was perfect, supple, and the genitalia could be studied at leisure back in London. For now

it remained only to get good photographs of the critter, the culprit, and the scientist, who by now was enthusiastically sure the *mudfly* was new to science (getting something new to science does perk up the entire crew).

A couple of weeks later I was back in London. The abdomen of the *mudfly* was popped into KOH before I unpacked (I actually hardly ever manage to unpack between trips in any meaningful sense), ready for the microscope that same afternoon. The *Eicochrysops* come in many forms, but never mind how different, the structures of the male genitalia are more or less identical. Under the microscope was revealed something very different indeed – something that resembled no other African Lycaenid. It would have to be a new genus as well?

My brain began to dig into its deeper recesses. Had I not seen something similar once. Yes I had. Back in 1970 I had dissected some Yugoslav (as it was then) *Everes*. This genus is also in the United States, and a quick check showed the same characteristic genitalia. The *mudfly* must accidentally have been brought to Ghana in the bottom of a glassine envelope from some long forgotten collecting trip in the States. It had been lying with so many larger butterflies that it had relaxed to the point where there was no reason it should have not been collected that day.

Here was no malice aforethought, and the issue was cleared up before it had been made public. No damage was done, though a new species would have been nice. But there is a moral to the story. Take care! These things can and will happen!! I managed to intercept this *mudfly* at source, after the initial period of excitement. But, I might well have placed it in a Museum somewhere with the Kakum label, and thirty years from now it might have been rediscovered on these lines: '"The discovery in Africa of an *Everes*, an otherwise Holarctic genus, is of supreme interest. The fact that it carries a Larsen 1996 label from Kakum gives us complete confidence in its origin; Larsen was very careful in labelling, did not give his labels away, and never collected in the relevant parts of the United States".

One of the most interesting parallels to what (might have) happened in Kakum was the description by Evans (1937) of the skipper species *Aurina dida* Evans, 1937, a new genus and a new species from Côte d'Ivoire. It is actually a known Neotropical butterfly that got the Côte d'Ivoire labels by some mistake! And Evans reviewed the African skippers before the Neotropical.– TORBEN B. LARSEN, 368 Coldharbour Lane, London SW9 8PL.

The Small Marbled *Eublemma parva* (Hb.) (Lep.: Noctuidae) in Lancashire in 1998

The Upper Thames Branch of Butterfly Conservation held a field week, in early July 1998, in the Silverdale area of Lancashire. Two overnight m.v. sessions were operated at Gait Barrows National Nature Reserve courtesy of the English Nature warden Rob Petley-Jones. In all we ran four traps, two owned by Rob, one by David Redhead, and my own. On 10 July one of Rob's traps produced what appeared to him as a new micro for the reserve, but I immediately realised that it was one of the scarcer small macros and quickly identified it as a specimen of the Small Marbled *Eublemma parva*. The specimen was taken to Stephen Palmer of Preston, who has

set it for the museum at Fleetwood. I understand that he also has recorded a specimen at Preston.

A Large Emerald *Geometra papilionaria* was also in my trap, but had been damaged and attacked by Wood Ants *Formica rufa*. It was bright orange – just like an Orange Moth *Angeronia prunaria*. I believe that injections of formic acid may have altered the emerald pigment. The remains have now gone the traditional brown as one would expect from light exposure.– A.M. GEORGE, Bayhams, Radnage Common Road, Radnage, Buckinghamshire.

Argyresthia trifasciata Stdgr. (Lep.: Yponomeutidae) new to Hampshire

One evening, during a spell of warm, humid weather in early May 1997, I netted a pale moth in my garden (OS grid reference SU 878552). It appeared to be an *Argyresthia* and the size and forewing markings corresponded well with the illustration of *A. trifasciata* in Emmet (1996. *The Moths and butterflies of Great Britain and Ireland* **3**). Unfortunately, the moth managed to escape when I was attempting to transfer it to a larger container for closer examination. I saw no further similar examples until 20 May 1998 when one appeared in my garden moth trap. This, I was able to set, with considerable difficulty as I was unwell at the time. After close examination I concluded that it must be *A. trifasciata* and this has since been confirmed by Dr John Langmaid, to whom my thanks are due.

The foodplant here is almost certainly *Cupressocyparis leylandii*; there is a large stand of well-grown bushes in neighbours' gardens within a few yards of the spot where the first example was seen. Mr Barry Goater, the moth Recorder for Hampshire, could not recall any earlier records of this species in the county.– R.W. PARFITT, 29 Manor Road, Farnborough, Hampshire GU14 7EX.

Notes on the Comma _Polygonia c-album_ (L.) and Peacock _Inachis io_ (L.) butterflies in the south-east London area

In his account of the Comma, our Editor (Plant, 1987. *The Butterflies of the London Area*: 116) writes: "It would appear that the steady eastwards spread reached London around the early 1930s". It happens that I can push back this estimate by at least a few years: the butterfly was definitely already present in the south-east suburbs by 1926, and almost certainly breeding. I have a very clear memory of seeing (to my surprise) several specimens on michaelmas daisies in the garden of my prep-school at Blackheath in the early autumn term – late September or early-October of that year. I had taken my first, a worn example of the *hutchinsoni* form, in a nettle-fringed alley at Bognor, West Sussex, in August 1924, when it must still have been scarcely known from that county. The plurality of the Blackheath butterflies suggests that the species could well have arrived in the district a few years earlier than when first seen by me.

Turning now to the Peacock, Plant (*op. cit.*: 114) notes it as "essentially absent from the highly urbanised south bank of the River Thames in … Greenwich", so a few words on its present status in my district of the Greenwich Borough may be in order. In fact I can report it to be general, hereabouts, though far from common; a

few singletons are noted each year and it can be quite numerous on a warm spring day in and about the woods on Shooters Hill (Oxleas Wood, etc) wherever stinging nettles fringe the paths. The last one I saw here was in a curious situation. It was flying in a subway at a busy road junction on 29 August 1998. My entry probably disturbed it, possibly while prospecting the place for over-wintering, and it soon flew out into the street and was lost to view. Or, because the subway contained no nooks and crannies, the butterfly may have judged it unsuitable for hibernation. The date seems very early indeed for a retirement into winter quarters, but does the Peacock habitually, in these parts, disappear peculiarly early in the year, being seldom seen after about mid-August.– A.A. ALLEN, 49 Montcalm Road, Charlton, London SE7 8QG.

Two highly notable vanessid butterflies (Lep.: Nymphalidae) in north-east Surrey

On 27 August 1998 Mr K.C. Lewis, while collecting beetles in the Wild Garden at Kew Gardens, netted off a thistle a most remarkable specimen of the Peacock *Inachis io* (L.), the forewing eye-spot being replaced by three dark-coloured (blackish?) horizontal, parallel bars, the uppermost one the thickest and apparently the strongest and darkest. The hindwing eye-spot was smaller than usual but otherwise appeared normal. Unfortunately, the captor had with him no means of conveying the insect home in good order, being equipped only for collecting beetles, and it was therefore released. This butterfly species is almost notorious for its constancy of markings, any pronounced aberration being very seldom noticed in Britain at all events. I regret being prevented by the circumstances of the case from giving a more precise description and must leave it to the lepidopterists to assess, if possible, the status of this singular form and to determine whether other examples are on record.

On an earlier occasion, on 13 July 1996, Mr Lewis was lucky enough to obtain a good view of a Camberwell Beauty *Nymphalis antiopa* (L.) settled on the Thames footpath between Kew and Richmond. He believes there were several records that year, which may well be the case though I can not personally confirm the fact.

– A.A. ALLEN, 49 Montcalm Road, Charlton, London SE7 9QG.

Reader Survey Questionnaire

Thank you to all those who completed the Reader Survey Questionnaire that was sent out with the November 1998 issue of this journal. Just over 28% of readers have returned a completed form at 1 January 1999. May I urge those 72% of readers who have not already done so to return their completed form as soon as possible. To save postage, you can include it with your subscription renewal posted to the Treasurer if you wish. We will be unable to analyse the answers in a meaningful manner unless we get a return of at least 50%. – EDITOR

BOOK REVIEWS

Die Schmetterlinge Baden-Württembergs Band 7, Nachtfalter (moths) V. by **Axel Steiner and Günter Ebert**. 582 pages, 483 colour photographs, 329 diagrams and drawings, 170 distribution maps. 17 x 24 cms hardbound, ISBN 3 8001 3500 0. Series edited by Günter Ebert. Verlag Eugen Ulmer, Postfach (PO Box) 70 05 61, 7057 Stuttgart, Germany., 1998. German text. Price DM98.

Entirely devoted to the Noctuidae, this volume completes the survey of this family of moths begun in volume 5 of this magnificent and comprehensive series of books on the Lepidoptera of the south-western German state of Baden-Württemberg, which lies between France, Switzerland and Bavaria. As with the previously published volumes dealt with in my earlier reviews in this journal (**104**: 87; **107**: 203-204; **110**: 146-147) every species is superbly illustrated in at least the imago and larval forms, having been selected from large numbers of colour transparencies submitted by local entomologists. Wherever possible they are of living insects and have been photographed within the state's own borders. Many colour photographs of their typical habitats have also been included where appropriate. A high proportion of the species in this part of Germany also occur in the British Isles, either as residents or asimmigrants, both common and rare. The volume concludes with a valuable bibliography of 33 pages covering volumes 5 to this present one.

As usual, the text is detailed and highly informative on the distribution (including computer spot maps), phenology and ecology of each species, including accurate lists of larval foodplants actually known to be utilised in Baden-Württemberg. Much of this information is of great value to all European lepidopterists, whether they live in or visit Baden-Württemberg or not. Therefore, I can thoroughly recommend this volume and its predecessors to the readers of the *Record*. At DM98 (about £34.50 at the time of writing) it is excellent value for money and can be ordered direct from the publisher. John F. Burton

A checklist of Irish aquatic insects by **P. Ashe, J.P. O'Connor and D.A. Murray**. Occasional Publication number 3 of The Irish Biogeographical Society. 80 pages, A5 (folded and stapled), in wrapper. ISBN 0 9511514 2 8. £6.00 inclusive of post and packaging from Dr D. Murray, Dept Zoology, University College, Belfield, Dublin 4, Ireland.

As an island off the coast of another island off the coast of Europe, Ireland has a relatively poor fauna – although it is not that poor, with around 16,000 species of insect included. What Ireland does have, however, is considerable number of freshwater habitats, and as a result, the aquatic insects are proportionately greater in number. This new checklist covers the Collembola, Ephemeroptera, Odonata, Plecoptera, Hemiptera, Coleoptera, Neuroptera, Megaloptera, Hymenoptera, Trichoptera, Lepidoptera and Diptera and is a complete listing of all 1499 aquatic members of these groups so far known to occur in Ireland.

This is the first time such a complete checklist has been produced; it is long overdue and the authors are to be heartily congratulated, particularly since they themselves funded the publication! The 1499 species they list compare with 2342 in Great Britain and 2368 for the British Isles; the mathematically minded will have already worked out that this leaves 26 species present in Ireland that are absent from Great Britain. Each section opens with a short introductory paragraph summarising the number of species involved in that group and compares it with the British fauna. Where relevant, brief notes are provided on rare species and key works and it is possible, therefore, to refer to the most up-to-date works on a particular group.

The lists are not synonymic; authorities are given for binomials, with correct use of parentheses, but without dates. However, this is unlikely to be an obstacle to comprehension

since a list of sources is referenced at the end of each section. The booklet will likely prove invaluable to anyone interested in biogeography, biodiversity, limnology or entomology.

Colin W. Plant

The Birder's Bug Book by **Gilbert Waldbauer**. 290 pages, 38 colour photographs. 233 x 170 mm, hardbound. ISBN 0 674 07461 0. £17.50. Harvard University Press, 1998.

The interaction between birds and insects is complex and of great interest, and any publication which popularises that interest is likely to help bridge the gap which is sometimes evident between birders and entomologists. This book contains much of general interest in this broad subject area and presents it in a ready-friendly, informal manner. Although I do not myself like the semi-autobiographical style of the American author I can see that it is likely to endear the book to a generally interested public readership.

Ten chapters cover Bugs and birds through the ages, The only flying invertebrates, Bugs that birds eat, The bugs fight back, Bugs that eat birds, The birds fight back, Bugs that eat people (what has this to do with birds?), People fight back, A brief guide to the insects and Disappearing diversity. This is not a text book by any means; rather it is an informative and mildly entertaining work and its appeal is more likely to be to the entomologist's offspring than the entomologist him or herself. However, it does contain a serious message, particularly in the final chapter, and getting this message across to people in general seems like a jolly good idea to me. There is little here that the average *Ent. Rec.* reader would not already be aware of (one would hope) but it is a useful chapter to throw at friends, colleagues, children, politicians, spouses and any other non-specialists that you might encounter on your travels. It would make an interesting birthday present for someone with an existing interest in natural history who wishes to learn more. Hopefully, reading it might encourage in them a greater interest in entomology.

Colin W. Plant

Checkered Beetles (Buntkäfer): illustrated guide to the Cleridae of the Western Palaearctic by **Roland Gerstmeier**. Bilingual (German/English), 257 pp., 372 drawings and distribution maps, 128 coloured photographs on 8 plates, hardbound. ISBN 3-8236-1175-5. DM93.00 + VAT. Margraf Verlag, Wiekerscheim, Germany.

This book comprises an account of the Western Palaearctic representatives of two closely related beetle families – the Cleridae (122 species in the region) and Thanocleridae (one species in the region). Keys are provided to families, subfamilies and species and high-quality coloured photographs are provided for the majority of species. In addition, there are numerous black and white drawings of critical anatomical features. The distribution of species within the region is covered in the text and distribution maps are provided for the most of the species. There is also a brief account of the biology of the group.

I have tried the keys on some of the species occurring here and, in general, found them satisfactory though some learning about the book's layout was required initially. Thus, starting with "Key to families" I came almost immediately upon the unfamiliar term "phallobasic apodeme". It would have been helpful if I could have learnt there and then that there was a drawing explaining this and other anatomical terms hidden in the inside of the back cover. Then, having concluded from the key to families that the specimen I was examining belonged to the family Cleridae, I found myself referred directly to descriptions of the species in this family when it would have been much more helpful to be referred first to the key to subfamilies and thence to the keys to genera in each subfamily. While these cannot be regarded as serious faults, they do tend to mar the reader's first impressions. A more serious deficiency is the lack of a checklist of the species covered and of established and new synonyms.

Admittedly only 14 out of the 123 species dealt with can be regarded as British in any sense of the word. Nevertheless, with more and more British entomologists venturing abroad, there is clearly a growing need for information on the insects to be encountered overseas. This is illustrated by the nature of reviews which have been published recently in the *Entomologist's Record* – in the 12 months to October 1998, one third of the 18 publications reviewed dealt primarily with overseas entomology. Even for the stay-at-home British entomologists there is need for information on the most likely species to appear in Britain as new introductions. This book on checkered beetles will serve both needs.

John A. Owen

Provisional Atlas of the aculeate Hymenoptera of Britain and Ireland, Part 2 edited by **Robin Edwards**. 140 pp., 55 distribution maps. A5, paperback, ISBN 1 870393 42 2. Biological Records Centre, 1998. £6 by post from ITE Publication Sales, Merlewood Research Station, Grange-over-Sands, Cumbria LA11 6JU.

This is the second part of the provisional atlas, which includes maps numbered from 57 to 111 (maps 1 to 56 were included in Part 1 which is reviewed on page 48 of this volume). I draw the attention of readers to that review as there is little additional information to impart in a review of an essentially similar work involving a different suite of species in the same group.

It is evident that a number of errors have crept into the text of the present work at various points; I found three quite serious ones and there may be more. On page 116 it is stated that Falk (1991) lists *Osmia aurulenta* under threat category Notable B yet this species is absent from my own copy of Falk apart from passing mention of it as a host of *Stelis punctulatissima* on pages 262 and 263. Similarly, my copy of Falk only makes passing reference to *Hoplitis claviventris* on pages 37 and 260 whilst it is stated on page 122 of the *Atlas* that Falk also lists this species as Notable B. Finally, it is claimed that Falk classed *Stelis ornatula* in category Notable A whereas in reality he re-affirmed the earlier opinion of Shirt (1987) that it belongs within category 3 of the *Red Data Book*. According to my copy of the RECORDER computer software, *Hoplitis claviventris* is "Common", *Osmia aurulenta* is "Local" and *Stelis ornatula* is in *Red Data Book* category 3. I can only assume that the errors have arisen from the notion that species may be freely moved between categories according to whim. Counting the dots on the maps now presented shows clearly that the three species mentioned **ought** to be in the categories in which it is alleged that Falk placed them. The reality of the situation is that he did not – and as a formal status each must stand until formally altered. It may now sound as if I am labouring the point, but as one involved every working day in the use of invertebrates in Environmental Assessment I can assure the editor that it is acutely embarrassing to have a barrister at a Public Inquiry dispute the formal status of recorded species at a site because his client has read a more recent, but unofficial, publication!

Bees and wasps have become increasingly popular amongst entomologists in the last few years and will probably become even more so since, as essentially thermophilic species, they are likely to prove valuable indicators of the effects of global warming. This work, when all parts are published, will provide ecologists with a very important baseline of information against which changes can be monitored. Get your copy now before they sell out!

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Colin W. Plant

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THE ENTOMOLOGIST'S RECORD
AND JOURNAL OF VARIATION
(Founded by J.W. TUTT on 15th April 1890)

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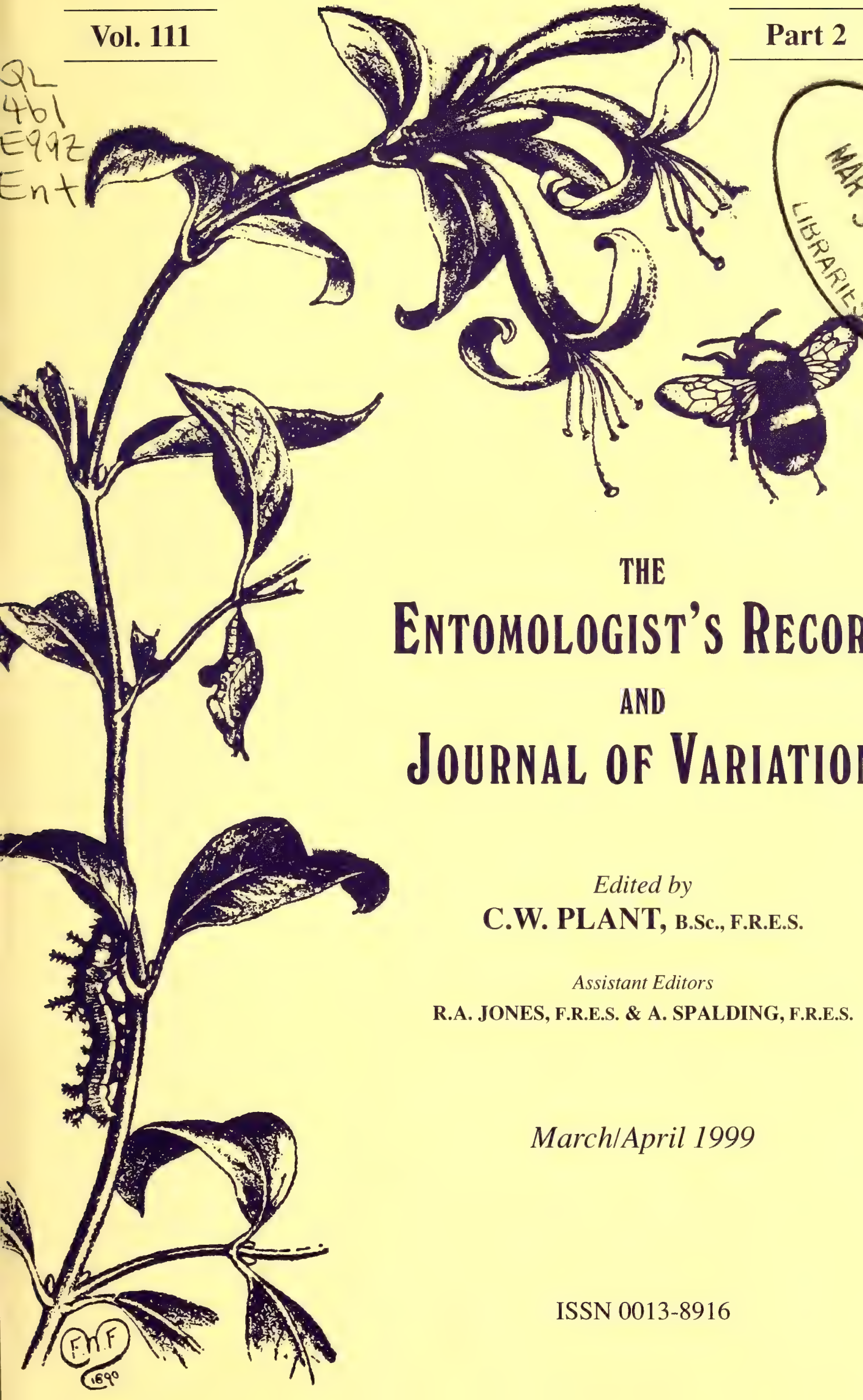

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OBSERVATIONS OF NIGHTLY FLIGHT PATTERNS IN SOME COMMON SPECIES OF MOTHS (LEPIDOPTERA)

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Introduction

DURING THE EARLY years of this century studies of nightly flight patterns in insects were concerned with pest species and their control. Techniques involved complicated equipment or staying up throughout the night to observe the target species. Williams (1939) did the first detailed work in looking at the nightly flight patterns of insects with his trap at Rothamsted. This allowed a variety of insects from different orders to be studied at the same time. The recent development of a relatively small and portable moth light-trap that allows the night to be divided up into six periods, and its higher catch compared to a standard Robinson moth trap (Carrick & Overall 1997), has permitted studies on the segregation of species according to preferred flight times. This paper outlines a season's results from this trap, which show the main flight strategies adopted by different moth species.

Methods

The Carrick-Overall trap was set regularly between June and September 1994 at Holt Hall Residential and Field Study Centre, near Holt in north Norfolk. The trap was programmed to start at sunset and to sample the night in six equal periods until sunrise. This means that period length varied between 65 and 115 minutes, depending on the length of the night. The trap was emptied daily and the species and number of individuals of each species recorded in each section of the trap. The numbers for each species were totalled for each period of the night throughout their flight seasons. Species with overall totals of <30 were not considered unless they exhibited a very distinct pattern of flight throughout the night. Where numbers permitted, a goodness of fit chi-square test was applied to determine whether there was a significant preference for flight in a particular time period. The scientific names and classification used follow Bradley (1998). All times are given in British Summer Time (BST), which is Greenwich Mean Time (GMT), plus one hour.

Results

The data for all the species with sufficient data for analysis are given in Table 1.

For a number of species there was a preference for flight in one or two time periods (Table 1). For some species there was insufficient data for chi-square analysis. However, these species have been included because they show trends that conform with others that do show significance. It is possible to identify four flight strategies; moths showing a preference for period 4 (ie between approximately 1.00 am and 2.00 am BST), early fliers peaking in numbers in periods 1, 2 or 3, late fliers being moths that do not fly in the early part of the night or peak in periods 5 or 6 and moths showing an even distribution throughout the night. This latter group is

categorised on the basis that the moth species do not show statistical significance in their distribution throughout the night.

The similarities of the flight patterns within these categories are best seen graphically. The first four species are plotted from each flight strategy given in Table 1 as representative of each of the flight strategies (figures 1 - 4). Numbers of moths m

Species	Time Period 1	2	3	4	5	6	Significance	F Strategy
Idaea aversata	1	6	5	14	5	4	p<0.001	Period 4
Biston betularia	1	4	25	33	7	7	p<0.001	Period 4
Alcis repandata	2	9	24	31	9	4	p<0.001	Period 4
Pheosia tremula	1	3	6	15	6	3	p<0.001	Period 4
Agrotis segetum	3	3	7	15	7	2	p<0.01	Period 4
Agrotis exclamationis	38	43	96	183	105	63	p<0.001	Period 4
Noctua pronuba	199	227	216	278	184	106	p<0.001	Period 4
Noctua janthe	18	17	43	77	52	45	p<0.001	Period 4
Discestra trifolii	8	5	9	19	18	5	p<0.01	Period 4
Laconbia oleracea	11	9	24	34	11	2	p<0.001	Period 4
Melanchra persicariae	2	4	1	18	3	4	p<0.001	Period 4
Mythimna comma	2	4	3	10	6	1	N E D	Period 4
Charanyca trigrammica	4	5	11	34	14	11	p<0.001	Period 4
Pseudoips prasinana britannica	0	3	1	10	3	2	N E D	Period 4
Calliteara pudibunda	3	15	3	6	1	0	N E D	Early
Cerapteryx graminis	60	55	33	34	28	14	p<0.001	Early
Mythimna ferrago	1	0	11	3	2	0	N E D	Early
Mythimna impura	4	1	6	3	1	1	N E D	Early
Cosmia trapezina	4	8	16	8	9	6	N S	Early
Autographa jota	2	17	9	8	4	0	p<0.001	Early
Autographa gamma	81	102	59	50	29	20	p<0.001	Early
Laothoe populi	0	0	5	11	4	3	N E D	Late
Phalera bucephala	0	0	5	23	23	2	p<0.001	Late
Eilema lurideola	14	10	13	21	35	37	p<0.001	Late
Spilosoma luteum	2	7	4	13	10	14	p<0.05	Late
Ochropleura plecta	5	5	7	3	13	12	p<0.05	Late
Agrotis puta puta	5	1	4	8	9	5	N S	Even
Noctua comes	10	6	11	16	7	8	N S	Even
Xestia c-nigrum	47	28	44	43	47	36	N S	Even
Mamestra brassicae	10	8	15	19	19	16	N.S	Even
Mythimna pallens	14	19	23	34	20	23	N S	Even
Cosmia trapezina	4	8	16	8	9	6	N S	Even
Mesapamea secalis	18	32	27	40	38	36	N S	Even

Table 1. Flight periodicity in selected species arranged according to flight strategy. (Total No. of moths caught per time period).

are converted to percentages for each of the figures so that species can be compared on the same scale. The species are listed in the table taxonomically according to Skinner (1984).

Some closely related species show remarkable similar flight patterns eg. *Mythimna ferrago, M. impura*, *Autographa jota* and *A. gamma*. These are shown in Figs. 5 and 6 respectively.

Discussion

Of the four flight strategies identified, that showing a peak in period 4 was the most common. The flight patterns are very similar for species in this category. These species were at a very low frequency at the beginning and end of the night. Species that fly early in the night peaked in Period 2 or 3, eg. *Calliteara pudibunda*, *Mythimna ferrago* and *M. impura* (Table 1). By contrast *Cerapteryx graminis* was most frequent in Period 1 and then gradually decreased in frequency as the night progressed.

Species that fly late in the night may be absent in the first two periods, appearing after midnight in Period 3. This was the case for *Laothoe populi* and *Phalera bucephala*, neither of which was seen before midnight (Table 1). There are species that fly at low frequencies early in the night and increase in numbers with time, showing a gradual increase to peak in Period 6 e.g. *Eilema lurideola* and *Spilosoma lutea*.

Graphs are very similar for species that are evenly distributed through the night with most species showing a dip during period 2 and a maximum in either period 4 or 5. Despite the lack of significance when tested against a null hypothesis of no difference between periods there is a definite trend and most could be described as period 4 or late night flyers. It is possible that the frequencies seen in Period 1 represent moths in the immediate locality of the trap when the lamp is illuminated and that they are caught quite quickly, and that it then takes some time for them to undertake dispersal flight and thus encounter the trap.

Some species show two peaks of activity eg. *C. pudibunda*, *Idaea aversata* and *M. comma* (Table 1). Persson (1971) found that females of Noctuid species were active before midnight with a weaker peak later in the night and Ames & Cooter (1991) found that in *Helicoverpa amigera* young unmated females flew further and for longer than mated older females. Sappington & Showers (1992) supported such patterns with *Agrotis ipsilon* where mated females flew about three hours later than unmated ones and for approximately two hours less flying time. Therefore, it would seem that in some species there are individuals, particularly females, entering and leaving the flying population at different times of the night. In species with unmated females flying early and mated females flying later it is possible that this would give two peaks of flight activity if the unmated females settled. Similarly in species where individuals join the flying population as the night progresses, it is easy to see how peak flight activity can occur in period 4.

Few studies of this nature have been carried out for comparison. Williams (1939) conducted his classic study at Rothamsted using a timed trap which divided the night

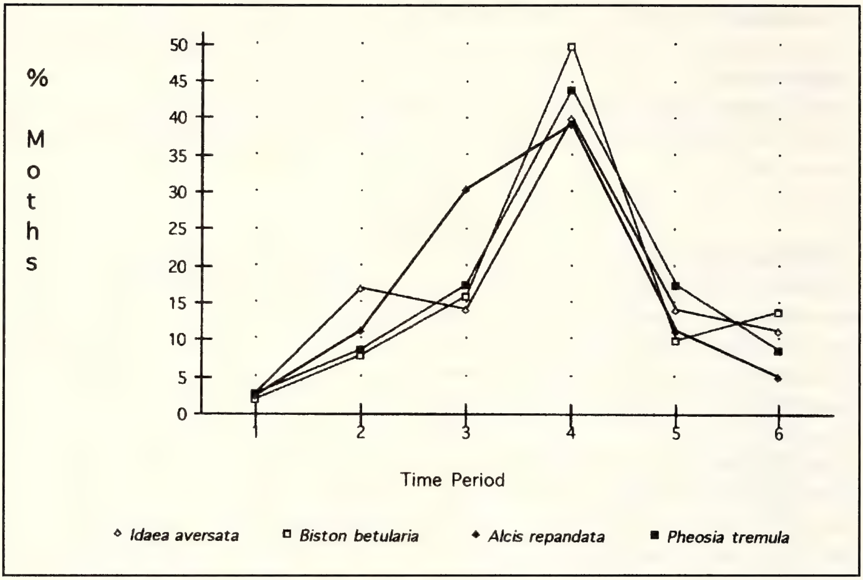

Fig. 1. Species with a preference for Flight in Period 4

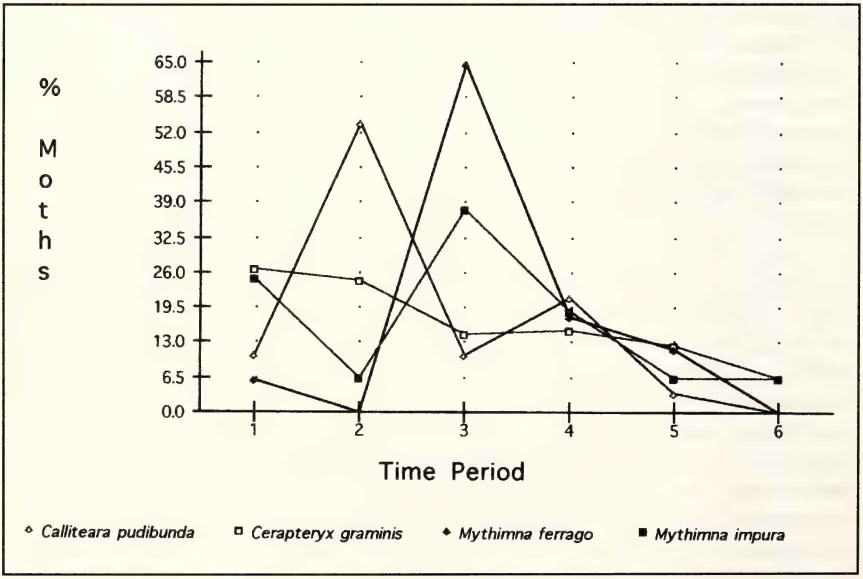

Fig. 2. Species flying early in the night

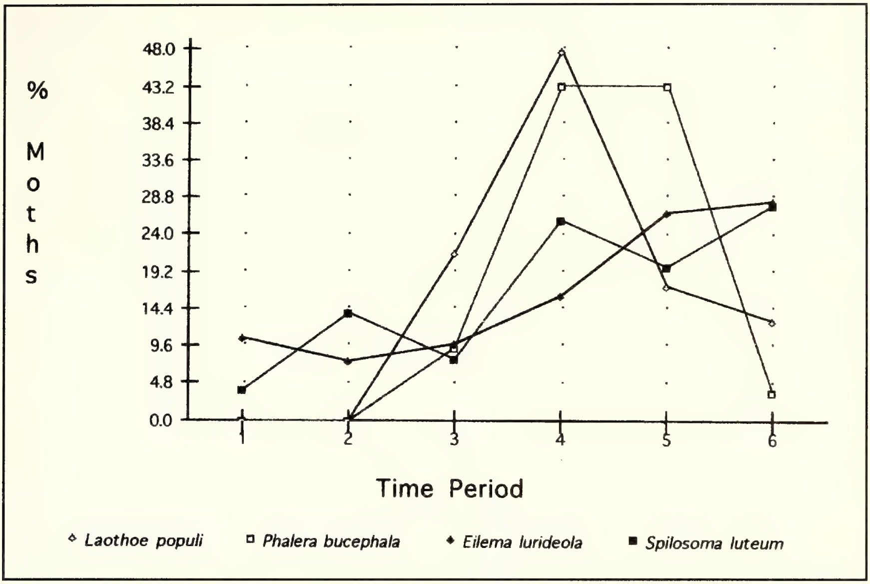

Fig. 3. Species flying late in the night

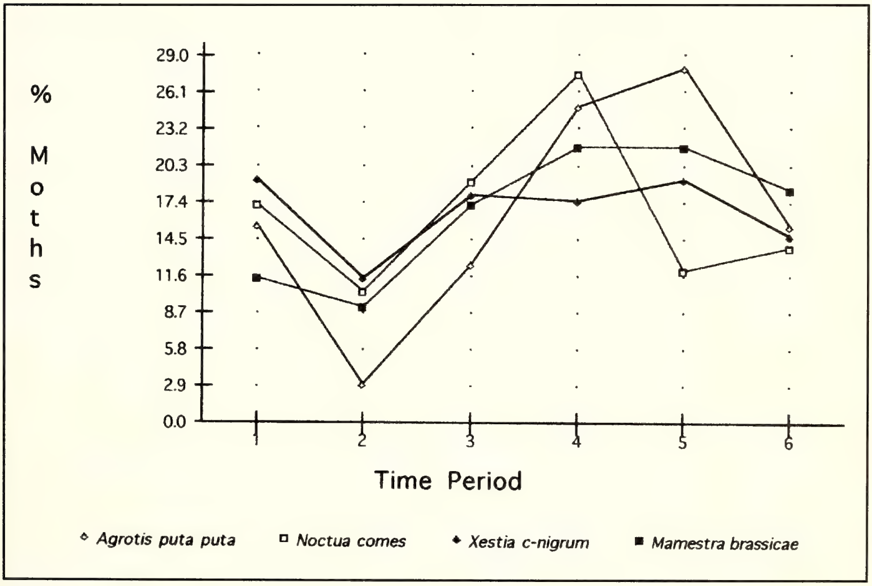

Fig. 4. Species evenly distributed throughout the night

into eight periods. He considered his results mainly in families and few of the species he highlighted have sufficient data for analysis here. However the results for *Eilema lurideola*, *Agrotis exclamationis* and *Mythimna pallens* are in agreement with

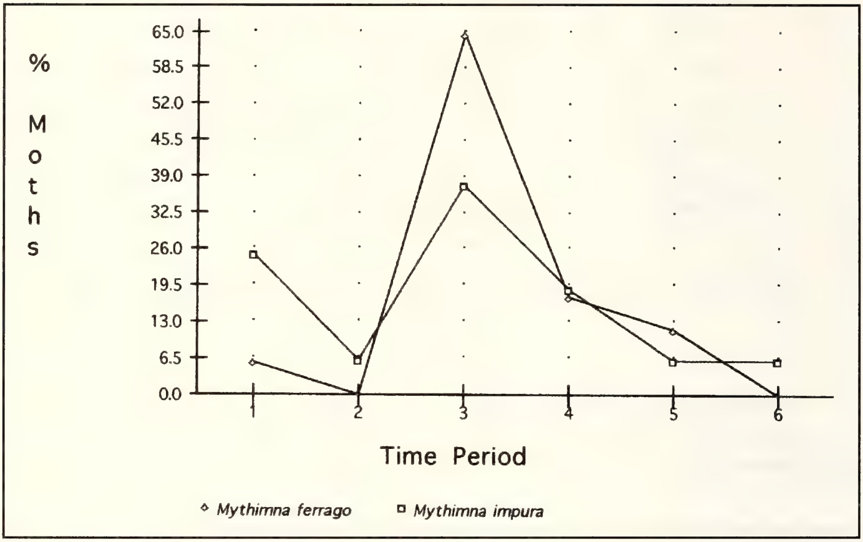

Fig. 5. Flight patterns of *Mythimna ferrago* and *M. impura*

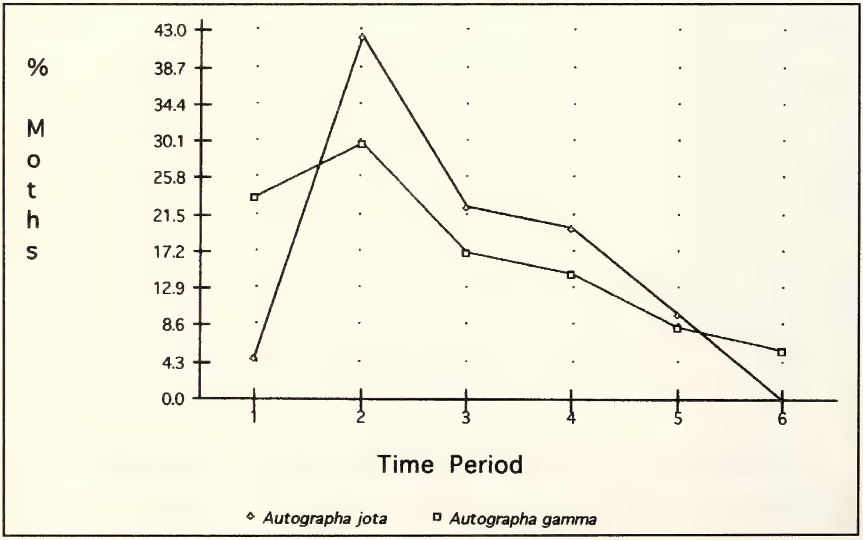

Fig. 6. Flight patterns of *Autographa jota* and *A. gamma*

his study. By contrast he found that *Xestia c-nigrum* peaked in the first half of the night, whereas in this study it was found to be relatively evenly distributed throughout the night.

The two *Spilosoma* species show patterns which confirm Williams (1939) with *S. lubricipeda* peaking earlier in the night than *S. luteum*.

It may be concluded that there is a general pattern of flight activity, with many species showing the greatest activity between 01.00hrs. and 02.00hrs. It was observed that as they came into their flight season, the early specimens of many species were caught in period 4 and it was only after numbers built up in the population that they appeared in other time periods.

Other flight strategies exist with species flying earlier or later in the night. Some of these species are quite conspicuous (eg. *Euproctis similis*) and it may be to their advantage to be most active outside the period of greatest activity as this may also be the time of greatest predator activity eg. bats. For other closely related species the pattern of flight activity may be determined by inheritance eg. *Autographa jota* and *A. gamma* (Fig. 6). The two species of *Mythimna* also show similar flight patterns (Fig. 5). It may be concluded that differences in flight patterns played no part in the divergence of these species.

The results from the timed trap only show flight activity in moths at times when they are phototropic. It is possible that moths may fly at other times when they do not respond to light; such activity cannot be sampled using a light-trap. This limitation of light-trapping was outlined by Williams (1939).

It is possible that some of the catches made in the early time periods for moths that peak in flight activity later in the night, may be due to moths that had gone to cover close to the trap on the previous night, having been attracted to the trap late in the night and then had flight suppressed by the onset of dawn before being caught. This could give the impression of an artificially long nightly flight period for some species.

It is well known that weather conditions can have a considerable influence on moth activity (Williams 1940) as can phases of the moon (Nawinsky & Ekk 1988, McGeachie 1989). No allowance has been made for meteorological conditions or phases of the moon over the time in which trapping occurred. This may account for the spread of some species through the night, with different conditions leading to different nightly flight patterns on a night to night basis. However the concern here is with the general nightly flight patterns of species over a flying season. It is accepted that this may vary from season to season (Williams 1939).

Acknowledgements

Thanks are due to Terry Overall and the Technical Support Team, Applied Sciences at Anglia Polytechnic University, Cambridge Campus for their work in developing the Carrick-Overall trap and in ironing out the initial teething problems. Thanks also to Dr June New of A.P.U. and Dr Brian Davis for their help, support and advice in carrying out this work and for commenting on the text of this paper. The development of the Carrick-Overall trap was made possible through a research bursary from B.E.S.T. Faculty, A.P.U.

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Corticeus unicolor Pill. & Mitt. (Col.: Tenebrionidae) new to Warwickshire

I was interested to read A.A. Allen's comment on the relative status of *Corticeus fraxini* (Kug.) and *C. unicolor* in the recent *Ent. Rec.* **110**: 168 just a few months after I had taken a specimen of this RDB 3 species in a private woodland in Warwickshire to which I have had access from the owners for nearly ten years. It was one of three found on 9.v.1998 on sap beneath the bark of an oak *Quercus* branch which had been left lying on the ground amongst a pile of other branches during winter felling operations in the wood within the previous two to three years. As the wood contains a sizeable area which is notified as a Site of Special Scientific Interest (SSSI), it is the policy to leave some recently cut and also decaying wood on the ground. The discovery of this species new to the county was just in time to be included in *A Provisional Atlas of the Cleroidea & Heteromera Beetles of Warwickshire* by Steve Lane, Keeper of Natural History at the Herbert Art Gallery and Museum, Coventry where the specimen, determined by Steve Lane, has been retained in the entomology collections. In Hyman & Parsons (1992, *A review of the status of the scarce and threatened Coleoptera of Great Britain,* **1**: 413), as Allen quotes, it is accorded "rare" status "with only four county-divisions for the post-1970 period." It would be interesting to hear whether the species has been found elsewhere since Hyman & Parsons was published. I would like to thank Steve Lane for his unfailing support with identifications and both he and A.A. Allen for encouraging me to publish this note.– B.R. MITCHELL, 127 Watling Street, Grendon, Near Atherstone, Warwickshire CV9 2PH.

NOTES ON THE DARK GREEN FRITILLARY *ARGYNNIS AGLAJA* L. (LEP.: NYMPHALIDAE) FROM THE ISLAND OF FLODDAY, OUTER HEBRIDES

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IN WESTERN Scotland and the Hebridean Islands, *Argynnis aglaja* is represented by ssp. *scotica* Watkins, a distinct and dramatic race (Plate B). It is rather variable but may be generalised as being larger than the English form, with an increase in size of black markings, and often considerable dark suffusion over the ground colour, particularly on the forewings of the female butterfly.

To my knowledge the ecology of *scotica* has not been studied, so the reason why so striking a race has evolved is not known. However it seems possible that larger size may be a response to the windy environment in which it lives, where increase in flight power would lend a distinct advantage to a butterfly that tends to range over open areas in search of mate or foodplant. Many butterflies from northern latitudes, or high altitudes, are represented by darker forms. This has been shown to be a response to the difficulty of gathering sufficient heat to raise the thoracic muscles to flight temperature. Increased dark scaling, particularly on the basal third of the wings, performs a significant heat-gathering function and the heat is efficiently transferred to the body (Douglas 1986). It is likely that this mechanism explains the dark colour of *scotica*.

It is remarkable then that Heslop Harrison (1950) records a distinct colony of the species on the small island of Flodday, south of Vatersay (towards the southern end of the Outer Hebrides), which is smaller and "differs in colour from other Hebridean specimens". Ford (1947) describes it as a "very small, pale form". Unfortunately no measurements are given nor any specimens figured. As may be seen from the accompanying photograph, Flodday lies close to several islands in the area, the nearest being Vatersay, just 1.25 kilometres away. All these other islands carry *scotica*. The occurrence of a separate form on such a small island is of great interest for what it might tell us about the evolution of subspecies.

Field work

On a trip to the Outer Hebrides in July 1997, I was especially keen to get out to Flodday to see this race for myself. No commercial boats go to the smaller islands, so it was necessary to charter a boat from Castlebay in Barra at considerable cost. The weather on 20 July was generally sunny and warm, with only a slight wind and the journey took about an hour over relievingly calm water. I have a love of islands, especially uninhabited ones, and invariably feel a certain romantic thrill in being carried in a small boat away from civilisation. The spectacular journey did not disappoint, taking us past the high cliffs of Vatersay and Sandray. Sea birds were nesting on every convenient ledge, including such northern breeding specialists as the Black Guillemot, Great Skua and the pretty brindled form of the Guillemot, which appears to have put on white eyeliner and made a slip at the end of the job.

Flodday is one of the most difficult of the small islands to land on in anything other than calm weather. Wind, tide and its entirely rocky coast must isolate it for much of the year. It was a surprise to find a small flock of sheep on the island. They must be summer grazers as the flat top of this small, rocky outcrop would be totally inhospitable after the end of the short northern summer. The island is about one kilometre long and is split into two halves since the natural arch shown to connect them on my new OS map no longer exists. Time was limited and I was only able to look at the northern half. Even on a relatively calm day the wind was still gusting over the island and most of it looked simply too exposed to harbour butterflies. However in a sheltered gully four freshly emerged male *aglaja* were found, all typical *scotica*. No females were seen. Apart from two male *Polyommatus icarus* careering over the windy top of the island no other butterflies were seen outside this gully which contained small numbers of *icarus* and *Maniola jurtina* L. ssp. *splendida* White. It would seem that Heslop Harrison's curious race of *aglaja* no longer exists, having been replaced by typical *scotica*.

Evolution of the race

It is part of the fascination of evolutionary biology that the disappearance of any kind of animal is as interesting as its original existence. It may be of value to consider how this race came to be and why it should now be replaced by the typical form.

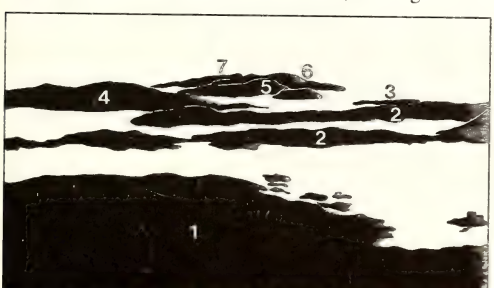
It is significant that *aglaja* varies throughout its range in the Hebrides. For instance the butterflies seen on Barra were poorly developed *scotica,* while those that I have seen in collections from its neighbour South Uist are more dramatic. Extreme forms occur on Pabbay, South Rona and Rhum (which also holds a population of more typical insects). Perhaps local populations have adapted to very local conditions on different islands and the differences in their markings illustrate physiological differences.

The occurrence of a very small, pale race (in other words quite the opposite of the norm for the area), is of particular interest. Unfortunately Heslop Harrison does not actually say that the entire population on Flodday was of this form, although his words imply it.

There are probably two ways in which the population might have become so different. Heslop Harrison (1950) attributed it to the "Sewall Wright effect", which Ford (1975) calls, more accurately, Random Genetic Drift. In brief, the principle is that one allele, or expression, of a gene may spread rapidly through a very small population by chance, not because it has any adaptive advantage. This could happen because, by chance, a parent carrying the allele leaves more offspring (carrying the allele) than other butterflies (not carrying the allele) in the population. With more potential parents in the next generation now carrying this allele it could rapidly spread through the small population if chance favoured it. If this allele (or more probably a group of multifactorial alleles) were coding for small, pale butterflies then it could explain the Flodday race of *aglaja*.

However, Ford (1975) says such a situation is rare and usually short-lived, because it is unusual for a gene(s) to be of such minimal selective value that they can override the process of natural selection for any length of time. In other words, it is more likely that, for a time at least, a change in local conditions meant that mutant gene(s) coding for small, pale insects (and probably some hidden physiological advantage) had some selective advantage over the normal *scotica* form, and so this race temporarily evolved, just as other populations in the different islands have evolved more, or less, extreme expressions of *scotica*.

Plate A. Islands of the Outer Hebrides, looking south from Barra.



Legend for Plate A.

1. Barra
2. Vatersay
3. Flodday
4. Sandray
5. Pabbay
6. Mingulay
7. Berneray

This does not necessarily count out the option of Random Genetic Drift accounting for Heslop Harrison's observations, as the race may have been short-lived. Unfortunately it is not possible to discover by which mechanism this race came about.

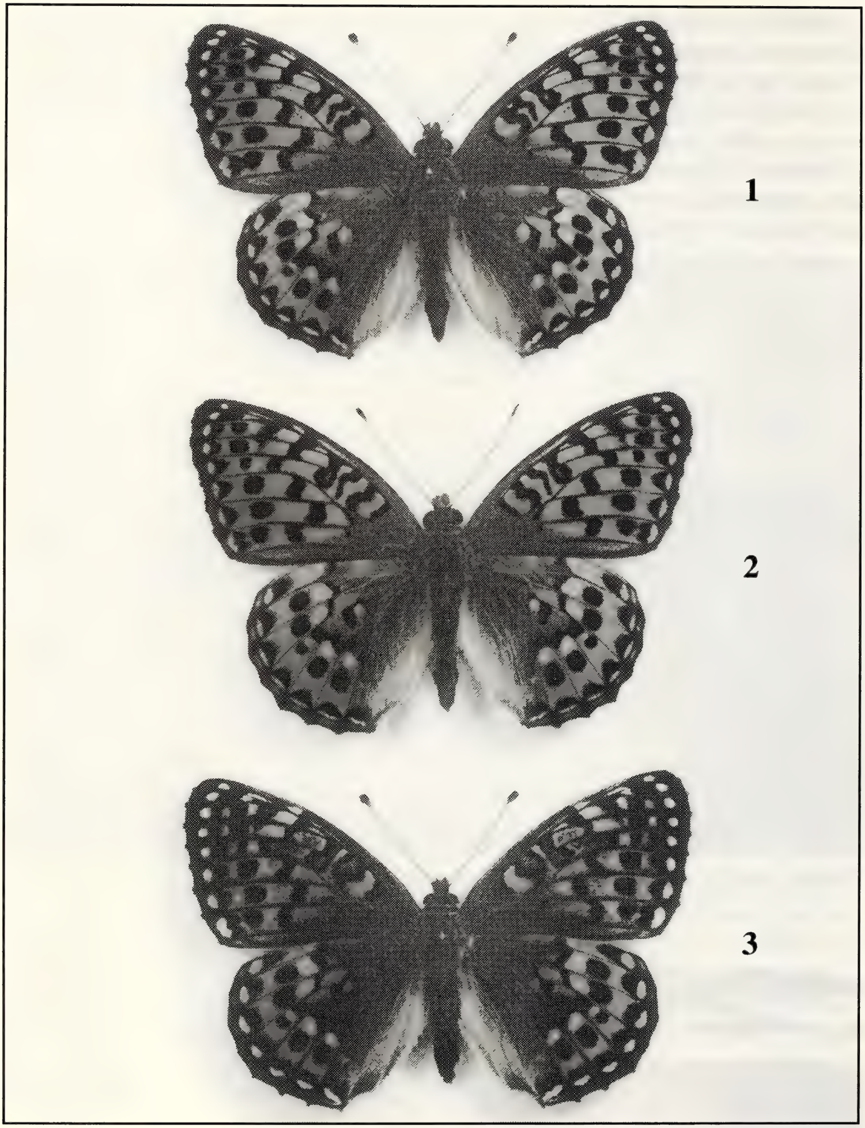


Plate B. Dark Green Fritillary *Argynnis aglaja* L. ssp. *scotica* Watkins (Lep.: Nymphalidae).

1.♂, Flodday, July 1997

2.♂, Pabbay, July 1997

1.♀, Pabbay, July 1997

All photographs are reproduced at natural size.

As to why the colony is now typical *scotica,* two possibilities exist both, probably, equally likely. One is that the population went extinct at some point and the island was repopulated by *scotica* from a nearby island. Given the small size of the island, and probable small size of the population, a few poor years could eliminate the population.

The second option is that selection pressures changed. Perhaps the climate was different for a few years or perhaps the introduction of grazing (or its temporary relief) changed the selection pressures on the insect, thereby rendering small, pale insects, with their particular physiology, at a disadvantage over typical *scotica.* Selection could then have returned the population to *scotica.* The process might have occurred in isolation or been aided by *scotica* immigrants from nearby islands.

The speed at which natural selection can return a divergent population to the normal form was beautifully demonstrated in the Scarlet Tiger Moth *Callimorpha dominula* L. by H.B.D. Kettlewell (Ford 1975). Over ten years Kettlewell selectively bred a captive population of *dominula* for extensive and coalesced white forewing spots and reduced black hindwing markings. These colour changes were genetically multifactorial. In 1948 he released this aberrant strain in the grounds of Tring Museum, Hertfordshire, where it bred naturally on planted food. By 1951 the population was already returning towards the typical form and by 1953 this process was almost complete. In just a few years natural selection had changed the mutant wing pattern (and doubtless mutant physiology) into almost normal wing pattern, which under wild conditions (and therefore different selection pressures from those of the laboratory) was at an advantage over the aberrant form.

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The British Tephritidae (Diptera) recording scheme – a request for data.

The British Tephritidae recording scheme was begun in 1983 and to date just under 10,000 records have been incorporated. A provisional atlas was published in 1997 and work is currently under way on an update. Given that there are only some 80 resident British species, most are very attractively patterned and that all are closely associated with flowering plants, they are an ideal group for study. I therefore invite all readers of this journal who would like to participate in the project to contact me. An identification service is provided for those who have, or think they may have, specimens of the family amongst their anonymous ranks of captures.– Laurence Clemons, 14 St. John's Avenue, Sittingbourne, Kent ME10 4NE.

New Year butterfly sightings, 1999

On New Year's Day, 1999 Mr Ken Sharpe of Plough Drive, Colchester, Essex reported to me that a Red Admiral *Vanessa atalanta* (L.) had been fluttering around blooms of *Niburnum fragrans* in his garden on a day when the temperature reached 9°C. The specimen was in perfect condition and was watched for up to 30 minutes before flying off.

On 4 January, my wife Linda saw a Peacock butterfly *Inachis io* (L.) in our garden at West Bergholt, near Colchester on another day when there was sunshine and 10°C. After some exploratory flights round the borders it flew in the direction of evergreen shrubs, being twirled along by a very strong south-westerly wind.

To complete a trio of New Year sightings, this time of a more unusual early species, a Painted lady *Cynthia cardui* was seen by A.J. (Bob) and Stephen Dewick at Bradwell-on-Sea, Essex, on 6 January. Dougal Urquhart, senior ranger at the Essex County Council Cudmore Grove Country Park, East Mersea in coastal Essex, also reported to me a Painted Lady which was flying behind the sea wall in the park in sunshine after some warm and blustery south-westerly winds. The specimen was in bright and perfect condition and was assumed to be a recently arrived immigrant.– JOE FIRMIN, 55 Chapel Road, West Bergholt, Colchester, Essex CO6 3HZ.

Atomaria scutellaris Motschulsky (Col.: Cryptophagidae) at Porthcawl, Glamorgan

On a sunny afternoon during a weekend visit to Porthcawl on 1.iii.1997 a walk along the sea front brought me to an open area of mown grass between the road and the shore known as "The Green". Near its edge, where it drops some two or three metres to a rocky shoreline, were several flat stones. Turning these over revealed a number of beetles. One of these was a species of *Atomaria* which was unfamiliar to me. Later dissection showed it to be a male whose aedeagus appeared most similar to that of *A. scutellaris* Motschulsky figured by Sjöberg (1947, *Entom. Tidskr.,* **68**: fig. 45). Reference to Johnson (1993, *Provisional Atlas of Cryptophagidae – Atomariinae (Coleoptera) of Britain and Ireland,* I.T.E., Huntingdon, map 47) showed this species to have a distribution confined to two separate areas; a south-western group encompassing the Channel Islands, Scilly Isles and the extreme tip of Cornwall; and a southern group along the Sussex coast but also extending inland to Surrey. I sent the specimen to Colin Johnson who confirmed my provisional determination and commented that he was unaware of any other records from further north up the south-west peninsula. This would, therefore, appear to be the first record of *Atomaria scutellaris* from Wales.

The most numerous species of beetle taken with *A. scutellata* was the histerid *Kissiter minimus* (Aubé). Other more cosmopolitan Coleoptera present were *Amara aenea* (Deg.), *Harpalus affinis* (Schr.). *Tachyporus hypnorum* (F.), *T. pusullus* Gr., *Oxypoda brachyptera* (Steph.), and larval *Lagria hirta* (L.).– R. COLIN WELCH, The Mathom House, Hemington, nr. Oundle, Peterborough PE8 5QJ.

ON THE DISTRIBUTION OF *EUNICA* (FORMERLY IN *LIBYTHINA*) *CUVIERII* (GODART) (LEP.: NYMPHALIDAE) INCLUDING A NEW RECORD OF THE SPECIES FROM MINAS GERAIS, BRAZIL

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Introduction

THE NEOTROPICAL nymphalid butterfly *Eunica cuvierii* (Godart) (1819: p. 171), which had formerly been placed under *Libythina* Felder (1861: p. 49; by monotypy) rather than under *Eunica* Hübner (1819: p. 61) (see Jenkins 1990, for review), has hitherto attracted only few attention by lepidopterologists as is the case with some other *Eunica* species, although most members of the group are brightly coloured and some of them enjoy a tremendous amount of subspecific and infrasubspecific names (125 names described; Jenkins 1990). This is due to the fact, that most *Eunica* taxa are rather seldomly encountered, with *E. cuvierii* representing possible one of the rarest species in the group, which comprises at present 45 species and 24 subspecies (as recognised by Jenkins 1990). The present study intends to shed some light on the distribution of *E. cuvierii*.

General remarks on *Eunica* species

The members of the genus occur at various localities in the Americas, ranging from southern areas of the USA to Southern Brazil and Argentina (e.g. DeVries 1987, D'Abrera 1987, Jenkins 1990). The distribution ranges of most of the individual taxa, however, seem to be rather strictly confined, particularly regarding the Antilles. Possibly, *Eunica* in fact may represent several genera (Brown and Heineman 1972), but the material collected so far seems to be too few to allow any general conclusions on the topic at this time.

Eunica species in Costa Rica

Regarding *Eunica* species and their natural history, Costa Rica is by far best understood. According to DeVries (1987), the Costa Rican taxa of the genus (see Jenkins 1990 for taxonomy; not all of the taxa mentioned by DeVries 1987 are to be recognised) are usually found as solitary individual male specimens and are generally rare, with most of the females being unknown. The feeding habitats, the foodplants and the early stages of most Costa Rican species are lastly unknown as well, although DeVries (1987) spent years in the field and visited most of the important butterfly collections in the world to comprise his publication. The particular locality of a taxon in Costa Rica may moreover be effected by the results of a mass migration (see DeVries 1987 and Jenkins 1990 for a more comprehensive account). Some taxa of *Eunica*, especially *E. monima* (Cramer) (1782: plate 387) (DeVries 1987 calls the taxon "*E. monima modesta*"; *E. modesta* (Bates) (1864: p. 113), however, is according to Jenkins 1990 a junior synonym), are apt to this

phenomenon, which may explain a year to year abundance in local Costa Rican areas (personal communication of P. DeVries to B. D'Abrera as published in D'Abrera 1987: p. 540). However, the distances covered are negligible: Costa Rican *E. monima*, which is best understood regarding migration, covers merely some one hundred kilometres from the Guanacaste region to the Atlantic slopes (DeVries 1987).

Any information covering *Eunica* in a comparatively thorough manner regarding species in Southern America remains hitherto unavailable due to the immense size of the subcontinent which did so far not allow a comprehensive evaluation of Eunican taxa regarding bionomics. At least some data have been published:

Eunica species in Southern America

As is the case in Costa Rica, Southern American *Eunica* species are very fast flying, difficult to capture (even when using a trait), and very local. The extreme rarity of most *Eunica* species in general may be due to their tendency to stay within the forest at the canopy level (DeVries 1987, Jenkins 1990). They only seldomly descend to the ground, but *Eunica* species at times decide to feed on water seepage along a riverbank, landslip or puddle in the early morning, which basically warrants the only opportunity to capture a specimen.

Eunica cuvierii in Southern America

Eunica cuvierii is believed to be rare not because of staying in the deep rain forest and thus being difficult to capture, but for reasons of low abundance in general: According to Brown and Mielke (1967; cited from Jenkins 1990: p. 22), the species occurs "only in typical cerrado, flying among the stunted trees 1m above the ground. Does not enter forests". Jenkins (1990: p. 22) adds: "It appears to be a savannah species that usually does not occur in heavy forest."

Jenkins (1990) provided the most recent taxonomic re-evaluation of *Eunica* species hitherto published, and he included an account of the natural history and of the distribution range of most of the taxa in Southern America as was possible due to the limited amount of data available. Concerning *E. cuvierii*, Jenkins (1990) managed to examine 107 male and 18 female specimens in the course of visiting some 30 collections worldwide. Obviously, Jenkins (1990; consult page 22 of his paper) did not encounter the species himself although he had carried out various collecting trips to comprise his publication.

In the work of Seitz (1907: p. 484), the species was regarded as something of a rarity and that it when it occurred was "mostly single and in many places of the range rare". Some eighty years later, D'Abrera (1987) wrote, that he did not know this species other than from museum material, as it was the case concerning Jenkins' efforts (1990).

Regarding the distribution, the species has been believed to be restricted to the Amazonas lowlands by D'Abrera (1987; comp. Fig. 1). Jenkins (1990), however, found in the course of his extensive and scientifically extremely elaborate study

museum specimens, which had been collected in Bolivia, in the Brazilian Mato Grosso, in the Brazilian Goiás area and, most remarkably, in south-eastern Brazilian regions (Fig. 1; the figure was redrawn using Jenkins' data and a recent geographical guide of Brazil from Kopata 1993).

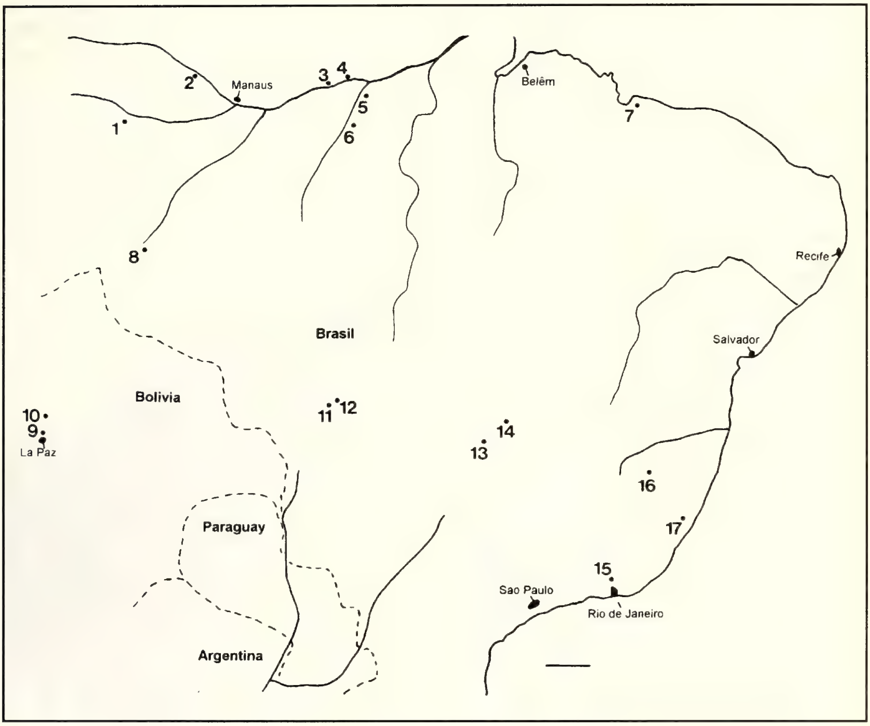

Fig. 1: This simplified map of a part of Southern America provides an account on the localities, where specimens of *Eunica cuvierii* have hitherto been collected (based on Jenkins, 1990). Bar scale: 200km. North is to the top of the figure. A statement like "(Moura?)" indicates that the specific locality is unknown and that the respective dot in the map was placed at the site of a town.
1: Tefé, 1 male (m); 2: Rio Negro (Moura?), 6 m, 1 female (f); 3: Juruti, 6 m, 4 f; 4: Obidos, 3 m; 5: Santarém, 23 m, 3 f; 6: Rio Tapajos (Fordlandia?), 3 m, 2 f; 7: Primeira Cruz, 1 m; 8: Porto Velho, 7 m; 9: La Paz, 1 m, 2 f; 10: Mapiri, 1 m; 11: Cuiabá, 9 m; 12: Chapada, 5 m; 13: several sites in Goiás state, which are located close to each other, comprising 27 m, 4 f; 14: several sites in Distrito Federal state, which are located close to each other, comprising 7 m, 2 f; 15: Tres Rios, 1 m; 16: Poté, 2 m (present study; Minas Gerais, Brasil, 10.xii.1996 - 15.i.1997, elevation 500m); 17: Parque Rio Doce (Colatina ?), 2 m. Jenkins (1990) listed additionally three males from Bolivia with "...no specific locality". Possible major areas of distribution: 1-8: Amazonas; 9, 10: Bolivian Cordillera Real; 11-14: "Campos"; 15-17: south-eastern Brazil. The dots 8-17 cover a possible belt of distribution, ranging from La Paz via the Bolivian Yungas and the "Campos" to south-eastern regions of Brazil.

I do not understand why D'Abrera (1987) stated "Amazonas" as the range of distribution, although he worked on the collection of the British Museum of Natural History, which holds specimens from other regions (see Jenkins 1990). In this respect, I fully agree with Jenkins (1990: 2), that D'Abrera (1987) provided no serious bionomic approach but (merely) beautiful pictures, which may lead to confusion. However, D'Abrera only intended to "...provide a foundation for others", and his books are worthwhile to be consulted for a rapid taxonomic overview. Regarding Eunica, Jenkins (1990) corrected D'Abrera's work (1987) comprehensively (comp. page 2 in Jenkins' study and the list in his appendix A).

An evaluation of the guide of Kopata (1993) revealed, that by far most of the specimens hitherto known to science were collected either in the Amazon basin or in the "Campos" of central Brazil, comprising savannah-like stunted forest areas in the Mato Grosso and in the Goiás (including the Distrito Federal State around the capital

Plate C.

Fig. 1: A male specimen of *Eunica cuvierii* (Godart) from Poté, Minas Gerais, Brasil (10.xii.1996 – 15.i.1997, elevation 500m), Upperside. Fore wing length from base to apex: 28mm. Hubert Thöny leg. The animal is deposited in my private collection. Note the prominent, libythaeid-like snout (i.e. long palpi), which made Felder (1861) to place the species among his newly erected nymphalid genus *Libythina* (not anymore available; Jenkins, 1990). Most similar regarding wing markings is *E. tatila bellaria* Fruhstorfer (1908: pp. 47-48; see Jenkins, 1990, for citation). From this taxon and from all other recognized *Eunica* species and subspecies, *E. cuvierii* can immediately be discerned by the longer palpi ("snout") and the swallowtail-like elongation of the hindwing tornus.

Fig. 2: As Fig. 1, Underside.

city Brasilia). Obviously, there is a distinct population flying in the Amazonas region and another population seems to inhabit the central Brazilian "Campos" (some 60 and 50 specimens, respectively, known; comp. Fig. 1). Unfortunately, there is no information available on the species bionomics in the Amazon basin. Therefore, it remains possible if not likely, that *E. cuvierii* in the Amazonas lowlands is a forest dwelling species, whereas it is a savannah-form in central Brazil (Brown and Mielke 1967). The following list (commented) accounts on the very few Bolivian and south-eastern Brazilian specimens hitherto known:

Bolivia: Three males; specific locality unknown. Two males and one female from the area of La Paz. One male from Mapiri (Mapiri is located some 150km north of La Paz at a low elevation in the Cordillera Real mountains). The few data available on the species in Bolivia generally suggest that it occurs around La Paz in mountainous regions, possibly however at comparatively low elevations (Jenkins 1990 presumes that the taxon inhabits levels from around 100m to 1100m, unfortunately without citing any reference). Since Mapiri is situated at the slopes of the Cordillera, i.e. comprising foothills entering the Bolivian Yungas and, in extension, comprising to the Brazilian Mato Grosso (comp. Forster 1956/58, for geographical information), Jenkins' (1990) assumption, according to which *E. cuvierii* might represent a savannah-species, is supported.

South-eastern Brazil: One male from Tres Rios, close to Rio de Janeiro (Rio de Janeiro State). Two males from Minas Gerais State. Jenkins (1990) cites "Parque Rio Doce Jun.". I do not know this place. The Rio Doce rises at the eastern slopes of the Serra da Mantiqueira mountains in Minais Gerais State, located some 200km northwest of Rio de Janeiro (Rio de Janeiro State), runs some 300km towards the north-east and changes its direction towards East some 200km off the Atlantic Ocean, where it ends. It is possible – if not likely – that the site of capture of the Minas Gerais specimens has to be located somewhere around Colatina in Espírito Santo State.

The distances between the former areas to the Amazonas area and to the Campos are rather impressing (comp. Fig. 1). Moreover, the ecological-climatical factors are largely different (Rio de Janeiro state exhibits mountainous rain forest; the sites in Bolivia may, however, belong to the savannah-like Yungas). Based on all available data, it is suggested that *E. cuvierii* comprises four different populations in Southern America (Amazonas, Campos, and the areas in Bolivia and south-eastern Brazil).

Any new record of this rare species, particularly from places other than the Amazonas and Campos regions, may add new clues and insights regarding its general distribution and therefore its phylogenetic-taxonomic and ecological-bionomic relationships.

Eunica cuvierii from Poté, Minas Gerais

Most recently, the author of the present note received a parcel containing mainly small Pierid and Satyrid taxa for determination, which were captured between 10.xii.1996 and 15.i.1997 at an elevation of 500m by Hubert Thöny at Poté in the

state of Minas Gerais, Brazil (Fig. 1). Two of the butterflies comprised in this parcel turned out to be males of *E. cuvierii* (Plate C). Both individuals were in best shape without any signs of being worn. Thus, the possibility that these specimens were members of a migration as it may at times occur in other taxa of the genus, may be excluded. Therefore, it is suggested that the species has a strong point of distribution in south-eastern Brazil.

Future work on this taxon should be undertaken in order to clarify, if there are hitherto unknown refuges between the four main areas of distribution suggested above, thus comprising a belt of distribution from La Paz to Rio de Janeiro, or, if the four areas of distribution as suggested above are in fact isolated from each other.

Acknowledgments

I am indebted to Hubert Thöny, presently living at Poté, who was friendly enough to undertake the effort in providing some butterflies from the vicinity of his home in his adopted country Brazil, although he is mainly concerned with Brazilian Noctuid moths.

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Hazards of butterfly collecting – Schevy, West Africa, 1993-1998

I first saw *Schevy* in July 1993 – he was not called *Schevy* then. He was a very old and rusty Russian LADA NIVA – a tiny four-wheel drive Russian army staff-car. He belonged to Klaus Schmitt, a botanist working with the Ghana Wildlife Department. We were on a mission to the remote Kogyae Strict Nature Reserve. Klaus's wife had come to spend the weekend. The little car had done 300 km from Accra, the last fifty through a maze of muddy, rutted roads that could almost stop our Toyota Landcruiser. Klaus was leaving Ghana. My study of West African butterflies was just beginning. "Why don't you buy it", Klaus said, "I'd love it to continue working with wildlife?". I had no budget for such an extravagance. Klaus wanted just $3,000. I thought the Carlsberg Foundation – which has generously funded much of my travels – might just allow that on next year's budget (they did, God bless them).

So in December, Nancy and I were back in Ghana, and went to the garage where the car was parked. It was there OK, but had a puncture. I could not find a spare wheel. I got hold of the manual, and lo and behold, the spare wheel lived inside the engine compartment – an arrangement I have never seen in any other car. So, tyres changed, we repaired to our hotel, to inspect our new purchase. It had done 65,000 kilometres. There was a lot of rust on the chassis. But Klaus had assured us that it was fine. We like having a name for our cars. A few years earlier Nancy had met Edouard Schevardnadze when he was Foreign Minister of the Soviet Union. *Chevy* is a well known American car. So *Schevy* he became.

Schevy also came with a manual so detailed that you could almost have built him from scrap. More than 500 pages of very poorly translated English. One of the largest chapters is what to do when temperatures drop below minus 30 centigrade – not normally an important consideration in Ghana! After much sound advice, the manual ends: "If the car will still not start, consult your maker". Amen!

But! Lada Nivas have been in production for more than 25 years. The Soviet Army could demand the best, and I am sure a lot of Colonels and Generals have been moved about in the modest comfort of this car. But all bugs had been ironed out and I hardly ever had a problem.

Here in late 1998, after ten trips to West Africa, *Schevy* now has 110,000 km on the clock. We have been several times all over Ghana together, as well as three times to Côte d'Ivoire. In the back is a tent, a table, two chairs, and the necessary equipment to camp anywhere. We have gone through roads that would have been difficult enough for a LandRover. *Schevy* and I have shared a lot of time in very remote places, but when all is said and done, *Schevy* most remembers one morning in April 1996. The Deputy Warden of the National Park was getting married. The car that had been booked for the wedding had gone bust: "Please, can we borrow *Schevy*?", said the delegation . . . . Yes, of course. So all the camping gear was hauled out, the rear seats folded back up, and a quick clean-up done. So off goes *Schevy* with bride, groom, best man, and chief bridesmaid. As they approach the church, *Here comes the bride* churns out from the local orchestra. *Shevy* really loved this, and it is also nice to help a friend in need.

On my last trip to Ghana, in August 1998, *Schevy* had been put in roadworthy condition by Sule, a splendid driver and mechanic working with *Conservation International*, but standing in the open for nearly two years had not improved its looks. Ever more rust, but not in any vital parts. So we set off for Côte d'Ivoire, some 500 kilometres to the west. The aim was to see some of the most famous collecting localities near Abidjan, togther with the British Ambassador, a very experienced lepidopterist. On the Saturday we visited Yapo and caught the Lurid Glider *Cymothoe lurida*; I know of only ten specimens of the nominate subspecies, which is found only in Ghana and Côte d'Ivoire. Sunday took us to Banco, a lovely rainforest that is actually in Abidjan itself; it used to be full of bad elements and very dangerous, but has now been completely cleaned up, and the central picnic area was full of visitors, both black and white. The Ambassador had just caught a lovely new Thecline of the genus *Iolaus* which will shortly be described, but we did not find more. There were many interesting things in the collection and it was well worth the long drive.

Schevy was also pleased. He confided to me that standing next to the Ambassador's gleaming Jaguar in the driveway of the Ambassadorial Residence was one of the most exciting things that had happened since the wedding. And it was, in truth, a most incongruous pair. Of one thing I am sure, however. *Schevy* is the best single investment in entomological research ever made in Africa!– TORBEN B. LARSEN, 5 Wilson Compound, 2811 Park Avenue, Pasay City, Metro-Manila, The Philippines.

Phyllonorycter leucographella (Zell.) (Lep.: Gracillariidae) feeding on *Sorbus aria* in Surrey

On 3 August 1997 I visited The Sheepleas at Horsley, Surrey (grid reference TQ 0851) in the company of John Boorman. I was surprised at the large number of upperside mines on whitebeam *Sorbus aria* of a *Phyllonorycter* which, I presumed, were *Phyllonorycter corylifoliella* (Hb.). There were a few mines on hawthorn, but those on whitebeam were far more numerous. In Scotland mines of *P. corylifoliella* are commonly found on birch, which is not a normal foodplant in the south, although it is recorded rarely (eg Plant, 1984. *Ent. Rec.* **96**: 179), and also on hawthorn and apple, but I have never encountered them on whitebeam. On my next visit to Surrey, on 13 October, I met the Dutch entomologist Sjaak Koster, who told me that blackthorn, hawthorn, cultivated plum and apple were recognised as foodplants of *Phyllonorycter leucographella* (Zell.) in the Netherlands (Stigter, H. & van Frankenhuyzen, A., 1991. *Ent. Ber., Amst.* **51**: 129-135), and that he had also bred it from rowan. I therefore returned to The Sheepleas that day and collected a few mines on whitebeam, from which a single *P. leucographella* had emerged before my return to Aberdeen on 17 October. *P. leucographella* may well occur on other foodplants and be more widespread than at present recognised; conversely upperside *Phyllonorycter* mines on whitebeam and also on rowan, apple, hawthorn, etc. should perhaps not be dismissed as *P. corylifoliella*.– ROBERT M. PALMER, Greenburn Cottage, Bucksburn, Aberdeen AB21 9UA.

THE MACROLEPIDOPTERA OF THE ROTHAMSTED ESTATE, HARPENDEN, HERTFORDSHIRE

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Introduction

ROTHAMSTED EXPERIMENTAL Station (IACR Rothamsted) is situated on a 330 hectare estate in Hertfordshire, south-east England, in the Ordnance Survey 10km square TL11. It was founded in 1843 by John Bennet Lawes primarily to study soil fertility and plant growth. It is well-known for its long-running "classical" experiments but its work now covers a wide range of agricultural research, particularly concerning arable crops.

Lepidoptera were first sampled at Rothamsted in 1933 by C.B. Williams. He found that moths were an ideal group to use in his research into various aspects of insect ecology, including the effects of weather on insects and their community structure (Williams, 1939; 1940). They are common, easy to sample, relatively easy to identify and, as a group, represent a broad range of ecological requirements. His work later resulted in a clearer understanding of how animal populations are structured and led to the development of a quantitative measurement of species diversity based on a parameter, alpha, from the log-series distribution (Fisher, Corbet & Williams, 1943; Taylor, 1984). Moths have been sampled on the Estate more or less continuously since 1933 and Williams' original light-trap site on Barnfield became the first site of the Rothamsted Insect Survey (RIS) national light-trap network. This Network was established in 1960 by L.R. Taylor and the resulting data have been used in over 600 publications on a wide variety of ecological, statistical and taxonomic research (Taylor, 1986). Samples from the standard RIS light-trap designed by C.B. Williams (Williams, 1948) are now used widely to assess the effect of changes in the environment on species diversity, phenology, geographical distribution and for other fundamental ecological research purposes (Woiwod & Harrington, 1994).

As a result of C.B. Williams' studies, the long-term RIS monitoring and related research at Rothamsted, the Estate has become the most intensively and continuously sampled area for moths in the UK and the total species list is comparable in size with that of some entire counties. Several species of national interest have been recorded, including The Brother *Raphia frater*, which remains the only British record (Skinner, 1984), the second British specimen of The Goosefoot Pug *Eupithecia sinuosaria* (Townsend & Riley, 1992b) and the Dusky Peacock *Macaria signaria* (Townsend, 1993c) of which only a few have ever been recorded in Britain. Land use on some parts of the Estate has changed considerably over time and this is reflected in the disappearance of some species and colonisation by others; detailed statistical analyses of these effects using the long-standing sites are in progress. This paper provides a catalogue of the species that have been recorded on the Estate over the last 63 years. It is hoped this inventory will provide an important cornerstone for future work on the Lepidoptera of Hertfordshire.

A brief description of the Estate

Rothamsted Estate covers approximately 330 hectares and is mainly experimental arable agricultural land. Apart from the peripheral boundaries, there are only a few substantial hedgerows. These are predominantly of Hawthorn *Crataegus* with some Elder *Sambucus nigra*, Blackthorn *Prunus spinosa*, Oak *Quercus robor*, Holly *Ilex aquifolium* and Ash *Fraxinus excelsior*. A few scattered standard trees remain, mainly Oak and Ash, though there are avenues of Limes *Tilia platyphyllos* and *T. x europaea*, Black Poplar *Populus* hybrids and Black Pine *Pinus nigra*. The Poplar avenue is particularly important as a food source for Lepidoptera as there are few other *Populus* species growing in the Harpenden area.

There are three important woodland sites. Knott Wood is now a small (approximately 10 hectares) fragment of a formerly larger ancient wood in which Hazel *Corylus avellana* was coppiced. Most of the wood was felled during the late 1930s and the land turned over to arable production. The trees which predominate now are Oak, Ash, Sycamore *Acer pseudoplantanus*, Beech *Fagus sylvatica* and Hazel. The understorey contains several plants that are indicators of ancient woodland, such as the Yellow Archangel *Lamiastrum galeobdolon*, Dog's Mercury *Mercurialis perennis* and Bluebell *Hyacinthoides non-scriptus*, this last forming extensive carpets. The wood is also notable for the presence of Giant Bellflower *Campanula latifolia* which is uncommon in the area. A small area has recently undergone coppicing in an attempt to improve floral diversity. The second woodland is Manor Wood and this forms part of the ornamental gardens surrounding Rothamsted Manor and was, until the felling in the 1930s, continuous with Knott Wood. It is approximately 7.6 hectares in area and contains many introduced tree species such as Pine, Norway spruce *Picea abies* and other conifers. Native species include Birch *Betula pendula* and Oak. There are extensive plantings of Yew *Taxus baccata*, Rhododendron *Rhododendron* cultivars and Cherry Laurel *Prunus laurocerasus*. The third woodland is Geescroft Wilderness which covers approximately 0.75 hectares. This area was agricultural land until 1882 when it was allowed to revert to woodland by natural succession. The dominant trees here are Oak and Hawthorn with some Field Maple *Acer campestre* and, in some parts, a dense understorey of Holly.

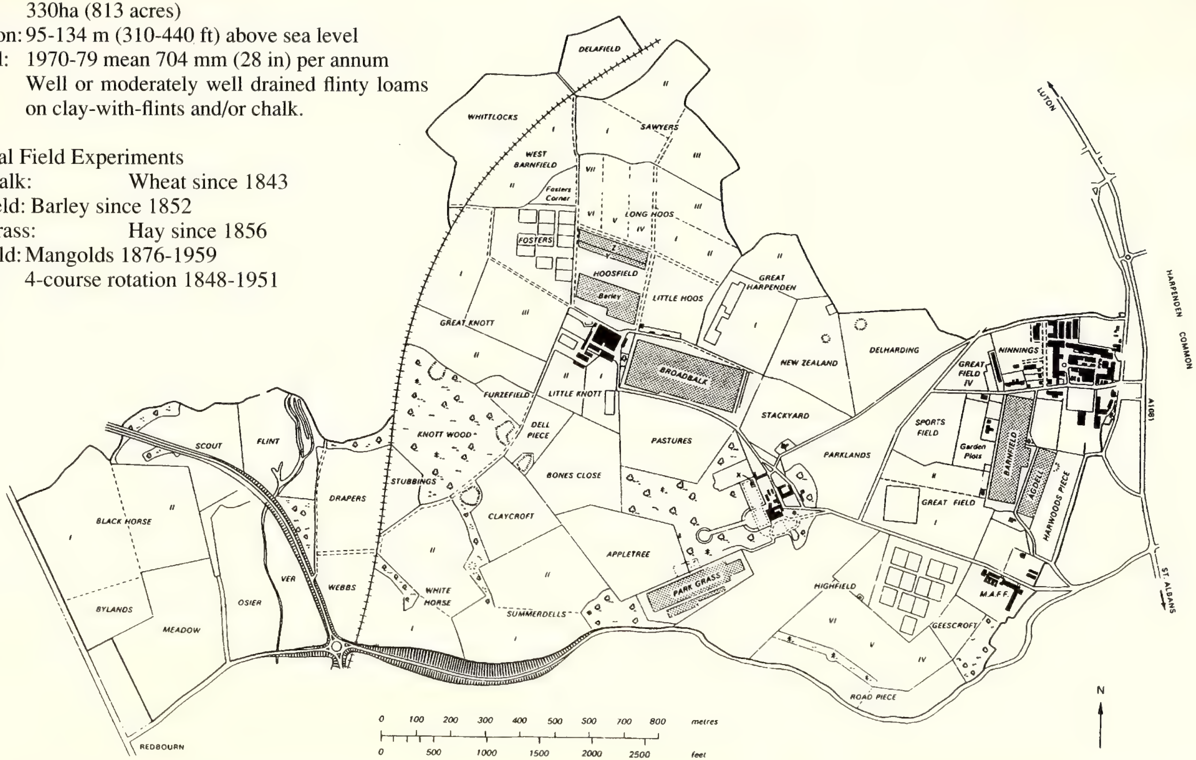
Of the "classical" long-term experimental areas (Fig. 1), the most important entomologically is Park Grass where hay has been grown continuously under controlled fertilizer regimes since 1856 and was unimproved grassland for 100 years before that (Rothamsted Experimental Station, 1991). Apart from harvesting twice a year, this area is relatively undisturbed. The floral diversity is great and provides a haven for those Lepidoptera associated with meadowland habitats. It is a site for the nationally scarce plant, the Snake's Head Fritillary *Fritillaria meleagris*.

Through the western end of the Estate runs a disused railway track which is now a recreational footpath. The diversity of herbaceous plants here is great and includes many garden "escapes". Also present are quantities of Sallow *Salix*, Elm *Ulmus*, Field Maple and Bramble *Rubus fruticosus*.

Figure 1. Rothamsted Experimental Station showing field boundaries and positions of classical experiments.

Area: 330ha (813 acres)
Elevation: 95-134 m (310-440 ft) above sea level
Rainfall: 1970-79 mean 704 mm (28 in) per annum
Soil: Well or moderately well drained flinty loams on clay-with-flints and/or chalk.

Classical Field Experiments
Broadbalk: Wheat since 1843
Hoosfield: Barley since 1852
Park Grass: Hay since 1856
Barnfield: Mangolds 1876-1959
Agdell: 4-course rotation 1848-1951



There is a small pond in the Manor gardens and the River Ver flows through the western edge of the Estate. Unfortunately, little is known of the Lepidoptera of these wet habitats. Until recently the river was often dry but the situation has improved since the reduction of groundwater extraction some three years ago.

Methods

Types of traps

Since 1933, the main sampling method for Lepidoptera recording on the Estate has been the standard RIS light-trap although other designs of light- and suction-traps have been used for particular studies. Some of these, such as the standard Robinson-pattern mercury-vapour trap, (Robinson & Robinson, 1950), are familiar to lepidopterists and are commercially available (Waring, 1994). However, others were designed at Rothamsted for specific on-site studies. The following is a list of all trap designs used with a description of the equipment where necessary.

RIS The standard (RIS) Rothamsted light-trap as described by Williams (1948). It comprises a mains-supplied 200 watt tungsten lamp at 1.5 m above ground level within a glass trap fixed to a timber base beneath an opaque metal lid. These traps usually operate every night of the year.

MV Standard Robinson 125 watt mercury-vapour light-trap known to most lepidopterists.

ROUND TRAP Similar to RIS trap, using 200 watt tungsten lamp, but set on a round, rather than square, base.

RMV RIS light-trap with 125 watt mercury-vapour lamp.

MVT Robinson light-trap with 200 watt tungsten lamp.

S18 Small suction-trap comprising a fan 46cm from ground level which draws insects through a gauze funnel into a collecting jar at its base.

S9 As S18 but 22.5cm from ground level.

S12 Described by Macaulay, Tatchell and Taylor (1988), this is the standard RIS "12 metre" suction-trap used for sampling aphids. It comprises a 3 m-high box containing a powerful fan which draws air down a pipe with the inlet at 12.2 m above ground-level. Insects are drawn into a netting funnel inside the box and into a collecting jar. These usually operate continuously.

S1.5 Suction-trap similar to S12 but smaller with the inlet at 1.5 m above ground level.

HST Suction-trap with 2 m box similar to S12. Laid horizontally with inlet cut into the dorsal surface of the box (no pipe) and set at 1.5 m above ground level.

Positions of sampling sites with trap type and period of sampling.

Figure 2 shows the positions of all the trapping sites. Their names, the type of trap used, and the period over which they operated, are given below. The numbers on the left are those used to identify each site in the systematic list. The site number given in brackets for some of the traps and the site names in bold text are those used to identify the site on the Rothamsted database. Where the design and purpose of specific experiments are published, a literature reference is given. Site 49 (Park Grass) operates as part of the UK Environmental Change Network (Sykes & Lane, 1996).

1.	**Barnfield**	(Trap A; Site No. 1). RIS trap. 1933-1937; (Williams, 1935; 1936; 1939; 1940); 1946-'50 (Williams, 1948; 1951b; Banergee & French, 1952); 1960 to date.
2.	**Bi**	Round trap. April 1933.
3.	**Bii**	Round trap. On the roof of a building at an approximate height of 10 m. August & September 1933; August & September 1934.
4.	**Biii**	Round trap. September & October 1934.
5.	**Biv**	Round trap. Suspended approximately 10 m above the Barnfield trap. November & December 1934; May to October 1935; May and June 1936.
6.	**B**	(Site No. 6). RIS trap. On a laboratory roof. 1946-'50.
7.	**C**	(Site No. 7). RIS trap. 1946-1947.
8.	**D**	(Site No. 8). RIS trap. 1948-1949.
9.	**E1-6**	A group of six RIS traps. July 1949. (French, 1951).
10.	**T**	RIS trap. August 1950 (Williams, 1951a).
11.	**Tm**	RMV trap. August 1950 (Williams, 1951a).
12.	**R**	MV trap. August 1950 (Williams, 1951a).
13.	**RD**	MV trap. August 1950.
14.	**F**	RMV trap. 1951 (Hosni, 1953).
15.	**G**	RMV trap. 1951 (Hosni, 1953).
16.	**Manor A**	RIS trap. May to September 1953 (Williams, French & Hosni, 1955).
17.	**Manor B**	RMV trap. As Manor A.
18.	**Manor C**	MVT trap. As Manor A.
19.	**Manor D**	MV trap. As Manor A.
20.	**H**	RMV trap. May to October 1956.
21.	**Highfield**	S18 trap in oat crop. June to August 1963.
22.	**Highfield A**	S9 trap in oat crop. June to August 1963.
23.	**Highfield C**	As Highfield A.
24.	**Highfield D**	As Highfield A.
25.	**Highfield E**	As Highfield A.
26.	**GI**	(Site No. 22). RIS trap. 1965 to date.
27.	**Allotments**	(Site No. 34). RIS trap. 1966 to date.

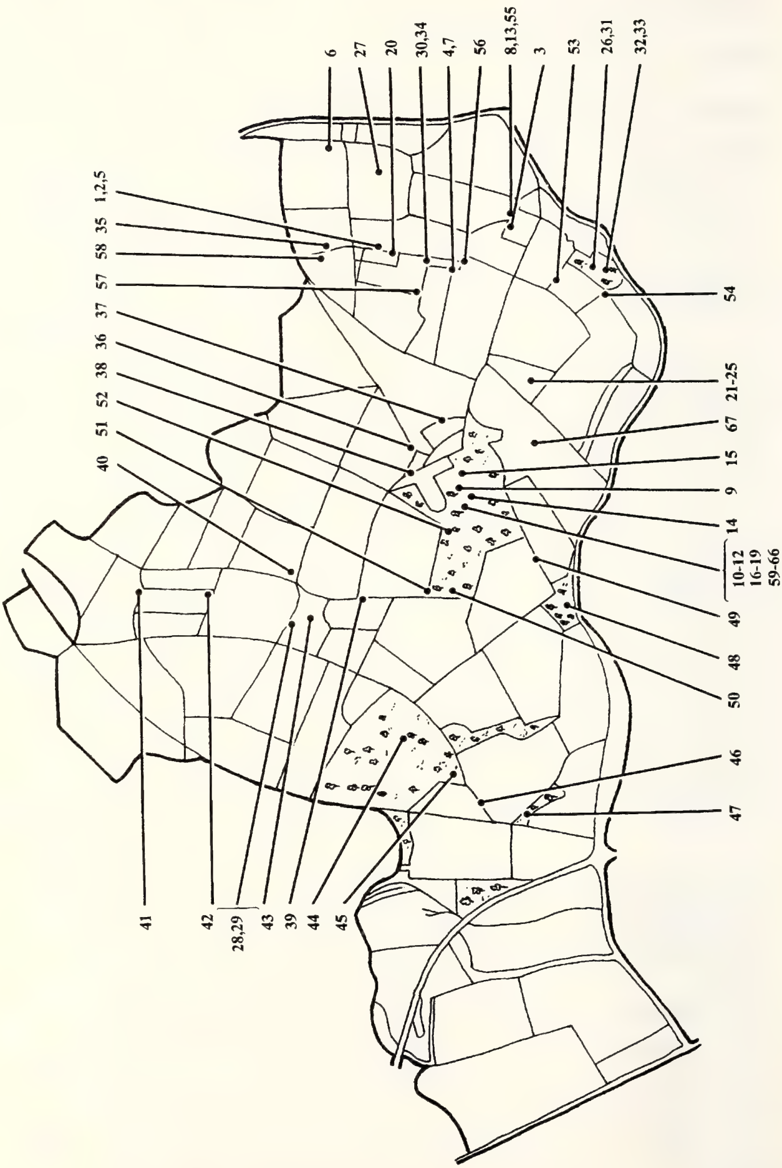


Figure 2. Positions of sampling sites on the Rothamsted Estate from 1933 to 1996.

28.	**Farm I**	(Site No. 902). S12 trap. 1969-1973.
29.	**Farm II**	(Site No. 920). S12 trap. 1970-1973.
30.	**Tower**	(Site No. 901). S12 trap. 1970 to date.
31.	**GI Suction**	(Site No. 504). HST trap. June 1972 to September 1973.
32.	**GII Suction**	(Site No. 505). As GI Suction.
33.	**GII**	(Site No. 99). RIS trap. 1972 to date.
34.	**Five Foot**	(Site No. 951). S1.5 trap. 1975 to date.
35.	**MVI**	MV trap. 1981-1982; 1989-1992 and June 1996.
36.	**MVII**	MV trap. 1989.
37.	**Parklands**	(Site No. 601). RIS trap. 1990 to date (Woiwod, Riley & Townsend, 1990).
38.	**Stackyard**	(Site No. 602). As Parklands.
39.	**Little Knott**	(Site No. 603). As Parklands.
40.	**Broadbalk**	(Site No. 604). As Parklands.
41.	**Sawyers**	(Site No. 605). As Parklands.
42.	**Long Hoos**	(Site No. 606). As Parklands.
43.	**Farm**	(Site No. 607). As Parklands.
44.	**Knott Wood I**	(Site No. 608). As Parklands.
45.	**Knott Wood II**	(Site No. 609). As Parklands.
46.	**White Horse**	(Site No. 610). As Parklands.
47.	**White Horse Spinney**	(Site No. 611). As Parklands.
48.	**Apiary**	(Site No. 612). As Parklands.
49.	**Park Grass**	(Site No. 613). As Parklands.
50.	**Manor Wood I**	(Site No. 614). As Parklands.
51.	**Pastures**	(Site No. 615). As Parklands.
52.	**Manor Wood II**	(Site No. 616). As Parklands.
53.	**Geescroft Field**	(Site No. 617). As Parklands.
54.	**Roadpiece**	(Site No. 618). As Parklands.
55.	**Lodge**	(Site No. 619). As Parklands.
56.	**Great Field**	(Site No. 620). As Parklands.
57.	**Garden Plots**	(Site No. 621). As Parklands.
58.	**Ninnings**	(Site No. 622). As Parklands.
59.	**Manor Wood i**	(Site No. 506). RIS trap. May 1974 to May 1975.
60.	**Manor Wood ii**	(Site No. 507). As Manor Wood i.
61.	**Manor Wood iii**	(Site No. 508). As Manor Wood i.
62.	**Manor Wood iv**	(Site No. 509). As Manor Wood i.
63.	**Manor Rota**	RIS trap. May to August 1964. (Taylor & French, 1974).
64.	**Manor Rotb**	As Manor Rota.
65.	**Manor Roba**	MV trap. Otherwise as Manor Rota.
66.	**Manor Robb**	As Manor Roba.
67.	**Highfield T**	A group of nine RIS traps. April to September 1967.

Identifications

All macrolepidoptera have been identified by staff at Rothamsted. The majority of the species in the genus *Eupithecia* were not identified routinely until 1985. Since 1960, those groups that cannot be identified by wing markings (some *Oligia, Epirrita, Eupithecia* and *Acronicta* species) were determined by examination of the genitalia. Since 1960, samples from sites 1, 26, 27, 33 and 37-58 have been kept for further examination. This has enabled checking where earlier identifications were considered doubtful. Prior to this and for other sites, it has been difficult to confirm records of unusual species. However, Williams compiled a reference collection during the 1930s and 1940s which contains many confirmatory specimens of species no longer found on the Estate.

Results

The following catalogue represents all the species of macrolepidoptera recorded at Rothamsted between 1933 and 1996. Lepidoptera have been sampled continuously on the Estate apart from the periods 1938-1945 and 1951-1959, Lepidoptera were sampled continuously. For completeness, those diurnal species which have been observed on the Estate, but not recorded in any of the traps, are included.

The nomenclature follows that of Bradley (1998).

Systematic list

HEPIALIDAE

Hepialus humuli (L.) Ghost Moth. – Regular and common.

H. sylvina (L.) Orange Swift. – Regular and common.

H. hecta (L.) Gold Swift. – Recorded only in Geescroft: single records in 1984, '86, '88 & '89.

H. lupulinus (L.) Common Swift. – Regular and common.

H. fusconebulosa (DeG.) Map-winged Swift. – Regular and common.

COSSIDAE

Zeuzera pyrina (L.) Leopard Moth. – A few since 1935. Greatest total six in trap 26 in 1952. Last in 1982 in trap 35.

ZYGAENIDAE

Zygaena filipendulae (L.) Six-spot Burnet. – Not caught in traps. Frequent on disused railway track.

Z. lonicerae (Scher.) Narrow-bordered Five-spot Burnet. – Trap 29, one in 1973. Frequent on disused railway track.

SESIIDAE

Sesia bembeciformis (Hb.) Lunar Hornet Moth. – Not caught in traps. One female on disused railway track, 1.viii.1980.

LASIOCAMPIDAE

Poecilocampa populi (L.) December Moth. – Regular and common.

Trichiura crataegi (L.) Pale Eggar. – Scattered individuals since 1946.

Malacosoma neustria (L.) The Lackey. – Common in the 1930s and 1940s. Not recorded since 1949.

Lasiocampa quercus (L.) Oak Eggar. – One in 1948 in trap 9. Scattered individuals since 1983.

Euthrix potatoria (L.) The Drinker. – Regular and common.

Gastropacha quercifolia (L.) The Lappet. – Regular until 1949, since when only one in trap 35, 18.vi.1990.

SATURNIIDAE

Saturnia pavonia (L.) Emperor Moth. – Trap 1, one in 1949; trap 37, one in 1992 and trap 51, one in 1992.

DREPANIDAE

Falcaria lacertinaria (L.) Scalloped Hook-tip. – Only eight individuals. First 1947, last 1982.

Watsonalla binaria (Hufn.) Oak Hook-tip. – Frequent at the woodland sites.

W. cultraria (Fabr.) Barred Hook-tip. – One in trap 14 in 1951. No others until 1990, several since (Riley & Townsend, 1991c).

Drepana falcataria (L.) Pebble Hook-tip. – Four in trap 6, 1946-1948; two in trap 7, 1946; one in trap 1, 1960; one in trap 26 in 1976.

Cilix glaucata (Scop.) Chinese Character. – Regular and common.

THYATIRIDAE

Thyatira batis (L.) Peach Blossom. – Frequent, mainly at woodland sites.

Habrosyne pyritoides (Hufn.) Buff Arches. – Most common at woodland sites.

Tethea ocularis (L.) Figure of Eighty. – Infrequent but widespread.

T. or ([D.&S.]) Poplar Lutestring. – One in trap 1, 4.v.1995.

Ochropacha duplaris (L.) Common Lutestring. – First in 1974 in trap 59, mainly Geescroft since.

Cymatophorima diluta ([D.&S.]) Oak Lutestring. – Trap 1, one on 26.viii.1933.

Achlya flavicornis (L.) Yellow-horned. – Trap 59, one on 9.iii.1993.

Polyploca ridens (Fabr.) Frosted Green. – Three in traps 6 and 8 in 1948; individuals since 1965 only in Geescroft and Manor Wood.

GEOMETRIDAE

Alsophila aescularia ([D.&S.]) March Moth. – Regular and common.

Pseudoterpna pruinata (Hufn.) Grass Emerald. – Frequent in trap 1 to 1949; a few in traps 26, 33 and 27 from 1967 to 1983 but not recorded since.

Geometra papilionaria (L.) Large Emerald. – Frequent in traps 1, 6, 7 and 8 during the 1930s and 1940s. Now mainly Geescroft; infrequent.

Comibaena bajularia ([D.&S.]) Blotched Emerald. – Frequent in 1930s and 1940s. not recorded since 1969.

Hemithea aestivaria (Hb.) Common Emerald. – Common at woodland sites.

Chlorissa viridata (L.) Small Grass Emerald. – Trap 1, one on 14.vii.1948; trap 33, one on 13.viii.1976.

Hemistola chrysoprasaria (Esp.) Small Emerald. – Scattered individuals 1947 to 1986.

Jodis lactearia (L.) Little Emerald. – Frequent at woodland sites.

Cyclophora albipunctata (Hufn.) Birch Mocha. – Trap 6, one in 1948; trap 33 one in 1973 and one in 1974.

C. punctaria (L.) Maiden's Blush. – Infrequent, mainly in Geescroft.

C. linearia (Hb.) Clay Triple-lines. – Trap 1, one in 1947; trap 9, one in 1949; trap 27, one in 1983.

Timandra comae (Schmidt) Blood-vein. – Regular and common.

Scopula imitaria (Hb.) Small Blood-vein. – Most common at woodland sites.

S. floslactata (Haw.) Cream Wave. – Scattered individuals since 1976; mainly woodlands.

Idaea ochrata (Scop.) Bright Wave. – Trap 27, one on 19.vii.1983.

I. rusticata (D.&S.) Least Carpet. – First in trap 26 in 1976; recorded frequently since 1994.
I. biselata (Hufn.) Small Fan-footed Wave. – Particularly common at woodland sites.
I. fuscovenosa (Goeze) Dwarf Cream Wave. – Infrequent, mainly in Geescroft.
I. seriata (Schr.) Small Dusty Wave. – Most common at woodland sites.
I. dimidiata (Hufn.) Single-dotted Wave. – Most common at woodland sites.
I. subsericeata (Haw.) Satin Wave. – Infrequent; traps 1, 24 and 53.
I. trigeminata (Haw.) Treble Brown Spot. – Mainly woodland sites. Possibly increasing.
I. emarginata (L.) Small Scallop. – Mainly woodland sites. Frequent.
I. aversata (L.) Riband Wave. – Regular and common.
I. straminata (Borkh.) Plain Wave. – Trap 40, one on 18.vii.1990 (Riley & Townsend, 1991a).
Rhodometra sacraria (L.) The Vestal. – Two in 1947; scattered individuals since 1961.
Orthonama vittata (Borkh.) Oblique Carpet. – Trap 1, one in 1947; trap 6, one in 1948.
O. obstipata (Fabr.) The Gem. – Scattered individuals, most (11) in 1969.
Xanthorhoe designata (Hufn.) Flame Carpet. – Frequent, mainly at woodland sites.
X. spadicearia ([D.&S.]) Red Twin-spot Carpet. – Frequent, especially in woodlands.
X. ferrugata (Cl.) Large Twin-spot Carpet. – Frequent, especially in woodlands.
X. quadrifasiata (Cl.) Large Twin-spot Carpet. – Most common in woodlands.
X. montanata ([D.&S.]) Silver-ground Carpet. – Most common in woodlands. Widespread.
X. fluctuata (L.) Garden Carpet. – Regular and common.
Scotopteryx bipunctaria ([D.&S.]) Chalk Carpet. – Trap 6, one in 1948.
S. chenopodiata (L.) Shaded Broad-bar. – Frequent but more common in 1940s.
S. mucronata (Scop.) Lead Belle. – Frequent in 1940s; declining. Last recorded in 1973.
S. luridata (Hufn.) July Belle. – Frequent in 1930s & 1940s; declining. Last recorded in 1981.
Catarhoe cuculata (Hufn.) Royal Mantle. – Trap 65, one in 1964.
C. rubidata ([D.&S.]) Ruddy Carpet. – Trap 6, one in 1948, two in 1949; trap 14, one in 1951 (Hosni, 1953). (No confirmatory specimens).
Epirrhoe alternata (Müll.) Common Carpet. – Regular and common.
E. rivata (Hb.) Wood Carpet. – Trap 1, one in 1948 and 1949; trap 6, two in 1948; trap 9, one in 1949; trap 60, one in 1974.
Camptogramma bilineata (L.) Yellow Shell. – Widespread and frequent.
Larentia clavaria (Haw.) The Mallow. – Frequent in 1930s and 1940s; mainly singletons since; last 1980.
Anticlea badiata ([D.&S.]) Shoulder Stripe. – Fluctuates greatly. Most common in woodlands. Definite decline at trap 1 since the 1950's.
A. derivata ([D.&S.]) The Streamer. – Fluctuates greatly. Most common at woodlands.
Mesoleuca albicillata (L.) Beautiful Carpet. – Infrequent; only at woodlands.
Pelurga comitata (L.) Dark Spinach. – Infrequent; mainly woodlands; declined at trap 1 since the 1940s.
Lampropteryx suffumata ([D.&S.]) Water Carpet. – Scattered individuals since 1973.
Cosmorhoe ocellata (L.) Purple Bar. – Frequent, mainly at woodland sites.
Eulithis prunata (L.) The Phoenix. – Frequent, most common in Geescroft.
E. testata (L.) The Chevron. – Fluctuating; generally infrequent.
E. mellinata (Fabr.) The Spinach. – Widespread; a few individuals most years.
E. pyraliata ([D.&S.]) Barred Straw. – Common, particularly in Geescroft.
Ecliptopera silaceata ([D.&S.]) Small Phoenix. – Frequent and widespread.
Chloroclysta miata (L.) Autumn Green Carpet. – Three in the 1930s in trap 1; trap 8, one in 1949; trap 26, one in 1967.
C. citrata (L.) Dark Marbled Carpet. – Infrequent and declining.

C. truncata (Hufn.) Common Marbled Carpet. – Widespread and common.

Cidaria fulvata (Forst.) Barred Yellow. – Widespread and frequent

Plemyria rubiginata ([D.&S.]) Blue-bordered Carpet. – Infrequent; mainly at woodland sites.

Thera obeliscata (Hb.) Grey Pine Carpet. – Occasional individuals in several traps but most frequent in Geescroft and Manor Wood.

T. britannica (Turn.) Spruce Carpet. – Widespread but infrequent.; possibly increasing.

T. juniperata (L.) Juniper Carpet. – First recorded in 1975. Numbers appear to be increasing.

Electrophaes corylata (Thunb.) Broken-barred Carpet. – Individuals most years in Geescroft. Infrequent elsewhere.

Colostygia olivata ([D.&S.]) Beech-green Carpet. – Trap 1, two in 1935.

C. multistrigaria (Haw.) Mottled Grey. – Formerly frequent in trap 1. Not recorded since 1935. Confirmatory specimens are in the RIS collection.

C. pectinataria (Knoch) Green Carpet. – Most frequent at woodland sites; occasional elsewhere.

Hydriomena furcata (Thunb.) July Highflyer. – Frequent and widespread; mainly at woodland sites.

H. impluviata ([D.&S.]) May Highflyer. – Trap 26, one on 2.vi.1982; trap 1, one on 30.vi.1985.

Horisme vitalbata ([D.&S.]) Small Waved Umber. – Uncommon. Scattered individuals from 1947 to 1989.

H. tersata ([D.&S.]) The Fern. – Infrequent. Most regularly caught in Geescroft.

Melanthia procellata ([D.&S.]) Pretty Chalk Carpet. – Regular in Geescroft but fluctuating. Infrequent elsewhere.

Rheumaptera cervinalis (Scop.) Scarce Tissue. – Regular in Geescroft. Infrequent elsewhere.

Triphosia dubitata (L.) The Tissue. – Usually scattered individuals. Most frequent in Geescroft.

Philereme vetulata ([D.&S.]) Brown Scallop. – Geescroft, seven between 1970 and 1982; trap 1, one in 1983.

P. transversata (Hufn.) Dark Umber. – Most frequent in Geescroft. First recorded in 1970 in trap 27.

Euphyia unangulata (Haw.) Sharp-angled Carpet. – Frequent at woodland sites; scattered individuals elsewhere.

Epirrita dilutata ([D.&S.]) November Moth. – Very common at woodland sites.

E. christyi (Allen) Pale November Moth. – Common in Manor Wood and Knott Wood. Infrequent elsewhere.

E. autumnata (Borkh.) Autumnal Moth. – Trap 60, one in 1974; trap 62, one in 1974; trap 1, one in 1978; trap 51, one in 1991.

Operophtera brumata (L.) Winter Moth. – Common, especially at woodland sites.

O. fagata (Scharf.) Northern Winter Moth. – Infrequent in Geescroft; trap 1 to 1949.

Perizoma affinitata (Steph.) The Rivulet. – First recorded in 1969; subsequently infrequent in Geescroft and trap 1.

P. alchemillata (L.) Small Rivulet. – Common in most traps.

P. bifaciata (Haw.) Barred Rivulet. – Uncommon. Scattered individuals in traps 1, 37 and in Manor Wood.

P. albulata ([D.&S.]) Grass Rivulet. – Trap 26, one in 1966; trap 1, one in 1986.

P. flavofasciata (Thunb.) Sandy Carpet. – Frequent at woodland sites; scattered individuals elsewhere.

P. didymata (L.) Twin-spot Carpet. – Frequent at woodland sites; individuals elsewhere; formerly frequent in trap 1.

Eupithecia tenuiata (Hb.) Slender Pug. – Infrequent; mainly at woodland sites.

E. inturbata (Hb.) Maple Pug. – Fairly common in Geescroft; scattered individuals elsewhere, particularly Knott Wood.

E. haworthiata Doubl. Haworth's Pug. – Widespread but infrequent.

E. linariata ([D.&S.]) Toadflax Pug. – Widespread but infrequent.

E. pulchellata Steph. Foxglove Pug. – Most frequent in Geescroft. Irregular elsewhere.

E. exiguata (Hb.) Mottled Pug. – Common at woodland and hedgerow sites.

E. pygmaeata (Hb.) Marsh Pug. – Only at trap 49; occasional individuals since 1992.

E. venosata (Fabr.) Netted Pug. – Widespread but uncommon. Most frequent in Geescroft.

E. centaureata ([D.&S.]) Lime-speck Pug. – Widespread and frequent.

E. intricata (Zett.) Freyer's Pug. – Most common in Geescroft and trap 1; infrequent elsewhere.

E. satyrata (Hb.) Satyr Pug. – Occasional individuals in traps 1, 26, 48 and 52.

E. absinthiata (Cl.) Wormwood Pug. – Widespread and frequent.

E. assimilata Doubl. Currant Pug. – Widespread and frequent.

E. vulgata (Haw.) Common Pug. – Widespread and common.

E. tripunctaria H.-S. White-spotted Pug. – Most frequent at woodland sites.

E. subfuscata (Haw) Grey Pug. – Widespread and common.

E. icterata (Vill.) Tawny Speckled Pug. – Widespread and frequent. Most common at woodland sites.

E. succenturiata (L.) Bordered Pug. – Widespread and frequent, especially woodland sites.

E. subumbrata ([D.&S.]) Shaded Pug. Trap 1, four between 1966 and 1987; trap 49, one in 1990; trap 51, one in 1991.

E. simpliciata (Haw.) Plain Pug. – Widespread but infrequent.

E. sinuosaria Evers. Goosefoot Pug. – Trap 45, one in 19-21.vi.1992. Second record for the British Isles (Townsend & Riley, 1992b). Confirmatory specimen in RIS collection.

E. indigata (Hb.) Ochreous Pug. – Occasional individuals in traps 1, 26, 33 and 50.

E. pimpinellata (Hb.) Pimpinel Pug. – Trap 40, one in 1990; trap 37, one in 1994.

E. nanata (Hb.) Narrow-winged Pug. – Individuals some years in Geescroft; trap 27, one in 1979; trap 1, one in 1983.

E. fraxinata Crewe Ash Pug. – Trap 33, one on 14.vii.1979 and one on 5.vii.1989; trap 1, one on, 26.vii.1982.

E. abbreviata Steph. Brindled Pug. – Common at woodland sites.

E. dodoneata Guen. Oak-tree Pug. – First recorded in 1986; subsequently increased in numbers and expanded in range, both on the Estate and nationally (Riley, 1991).

E. pusillata ([D.&S.]) Juniper Pug. – Regular in Geescroft, possibly from cultivated *Juniperus* in nearby gardens.

E. lariciata (Freyer) Larch Pug. – Occasional in Geescroft; trap 1, one in 1986; trap 9, five in 1949.

E. tantillaria (Boisd.) Dwarf Pug. – Occasional in, or near, Manor Wood.

Chloroclystis v-ata (Haw.) V-Pug. – Widespread but infrequent.

C. chloerata (Mab.) Sloe Pug. – Widespread but uncommon.

C. rectangulata (L.) Green Pug. – Frequent, mainly at woodland sites.

Gymnoscelis rufifasciata (Haw.) Double-striped Pug. – Frequent at woodland sites; occasional elsewhere.

Chesias legatella ([D.&S.]) The Streak. – Uncommon. Evidently frequent in 1930s and 1940s. Irregular since.

Aplocera plagiata (L.) Treble-bar. – Regular in 1930s and 1940s; scarce to 1978; not recorded since.

Euchoeca nebulata (Scop.) Dingy Shell. – Trap 26; one on 1.vi.1968 and one on 29.vii.1986.

Asthena albulata (Hufn.) Small White Wave. – Widespread but infrequent.

Hydrelia flammeolaria (Hufn.) Small Yellow Wave. – Regular in woodlands; occasional elsewhere.

Lobophora halterata (Hufn.) The Seraphim. – Infrequent; woodlands only.

Pterapherapteryx sexalata (Retz.) Small Seraphim. – Trap 1, one in 1946; trap 27, one in 1976.

Acasis viretata (Hb.) Yellow-barred Brindle. – Regular in woodlands; occasional elsewhere.

Abraxas grossulariata (L.) The Magpie. – Common in Geescroft; regular elsewhere.

A. sylvata (Scop.) Clouded Magpie. – Trap 6, one in 1947; trap 9, one in 1949; trap 26, one in 1970.

Lomaspilis marginata (L.) Clouded Border. – Regular in Geescroft; scattered individuals elsewhere. Declined since 1940's.

Ligdia adustata ([D.&S.]) Scorched Carpet. – Regular but fluctuating in woodland; infrequent elsewhere.

Macaria notata (L.) Peacock Moth. – Trap 26, individuals in 1970, 1976 and 1992.

M. signaria (Hb.) Dusky Peacock. – One in trap 45 on 2.vii.1992 (Townsend, 1993c).

M. liturata (Cl.) Tawny-barred Angle. – Occasional widespread individuals.

M. wauaria (L.) V-Moth. – Regular in Geescroft; occasional elsewhere.

Chiasmia clathrata (L.) Latticed Heath. – Common in 1930s and 1940s; declining to 1980; not recorded since.

Petrophora chlorosata (Scop.) Brown Silver-line. – Occasional individuals; evidently declined in trap 1.

Plagodis dolabraria (L.) Scorched Wing. – Regular in woodlands; occasional elsewhere.

Opisthographis luteolata (L.) Brimstone Moth. – Common in woodlands; widespread and frequent elsewhere.

Epione repandaria (Hufn.) Bordered Beauty. – Three in Geescroft in 1969, 1971 and 1975; trap 9, one in 1949.

Apeira syringaria (L.) Lilac Beauty. – Widespread and frequent in woodlands.

E. quercinaria (Hufn.) August Thorn. – Widespread; mainly woodlands.

E. alniaria (L.) Canary-shouldered Thorn. – Regular in woodlands; occasional elsewhere.

E. fuscantiaria (Haw.) Dusky Thorn. – Frequent in woodlands; occasional elsewhere; formerly frequent in trap 1.

E. erosaria ([D.&S.]) September Thorn. – Regular in woodlands; occasional elsewhere.

Selenia dentaria (Fabr.) Early Thorn. – Widespread and common, particularly at woodland and hedgerow sites.

S. lunularia (Hb.) Lunar Thorn. – Scattered individuals; possibly in decline.

S. tetralunaria (Hufn.) Purple Thorn. – Common at woodland sites; occasional elsewhere.

Odontopera bidentata (Cl.) Scalloped Hazel. – Common in woodlands; regular elsewhere.

Crocallis elinguaria (L.) Scalloped Oak. – Common in woodlands; regular elsewhere.

Ourapteryx sambucaria (L.) Swallow-tailed Moth. – Common in woodlands; regular elsewhere.

Colotois pennaria (L.) Feathered Thorn. – Common in woodlands; occasional elsewhere.

Apocheima hispidaria ([D.&S.]) Small Brindled Beauty. – Evidently frequent to 1950. Subsequent individuals in 1991 at traps 39, 48 and 51 and in 1996 in site 48.

A. pilosaria ([D.&S.]) Pale Brindled Beauty. – Common in woodlands; occasional elsewhere.

Lycia hirtaria (Cl.) Brindled Beauty. – Frequent in woodlands; occasional elsewhere.

Biston strataria (Hufn.) Oak Beauty. – Regular in woodlands; occasional elsewhere.

B. betularia (L.) Peppered Moth. – Regular in woodlands; occasional elsewhere; apparent decline in trap 1 but increasing in Geescroft. Both melanic and typical forms are present, the latter being the more common. No discernable change in proportions is evident.

Agriopis leucophaearia ([D.&S.]) Spring Usher. – Occasional at woodland sites; formerly recorded in trap 1.

A. aurantiaria (Hb.) Scarce Umber. – Widespread; common in woodlands.

A. marginaria (Fabr.) Dotted Border. – Widespread; common in woodlands.

Erannis defoliaria (Cl.) Mottled Umber. – Widespread; common in woodlands.

Menophora abruptaria (Thunb.) Waved Umber. – Regular in woodlands; occasional elsewhere.

Peribatodes rhomboidaria ([D.&S.]) Willow Beauty. – Widespread; common in woodlands.

Deileptenia ribeata (Cl.) Satin Beauty. – Fifteen records between 1985 and 1992.

Alcis repandata (L.) Mottled Beauty. – Common in woodlands; occasional elsewhere.

Hypomecis roboraria ([D.&S.]) Great Oak Beauty. – Trap 8, two in 1948; traps 14 and 15, one each in 1951.

H. punctinalis (Scop.) Pale Oak Beauty. – Occasional in Geescroft and Knott Wood.

Ectropis bistortata (Goeze) The Engrailed and *E. crepuscularia* ([D.&S.]) Small Engrailed. – Not routinely separated but both species occur at woodland sites, sometimes commonly. A third generation of the normally bivoltine *E. bistorta* is sometimes recorded. (Riley & Townsend, 1991d; 1992a).

Parectropis similaria (Hufn.) Brindled White-spot. – Occasional at woodland sites.

Aethalura punctulata ([D.&S.]) Grey Birch. – Occasional at woodland sites.

Bupalus piniaria (L.) Bordered White. – Trap 15, one in 1951; trap 65, one in 1964; trap 37, one in 1991. (Riley & Townsend, 1992c).

Cabera pusaria (L.) Common White Wave. – Regular in woodlands; occasional elsewhere.

C. exanthemata (Scop.) Common Wave. – Regular in woodlands; occasional elsewhere.

Lomographa bimaculata (Fabr.) White Pinion-spotted. – Frequent in woodlands; occasional elsewhere.

L. temerata ([D.&S.]) Clouded Silver. – Frequent at woodland and hedgerow sites; occasional elsewhere.

Theria primaria (Haw.) Early Moth. – Regular in woodlands; formerly frequent in trap 1.

Campaea margaritata (L.) Light Emerald. – Common in woodlands; occasional elsewhere.

Hylaea fasciaria (L.) Barred Red. – Occasional in Geescroft and Manor Wood; scattered individuals elsewhere, including Tower Suction-trap 30.

SPHINGIDAE

Sphinx ligustri (L.) Privet Hawk-moth. – Twenty individuals in four traps, 1946 to 1949. Not recorded since.

Hyloicus pinastri (L.) Pine Hawk-moth. – Trap 14, one in 1951; trap 35, one in 1990 (both M.V.) (Riley & Townsend, 1991a); trap 57, one in 1996.

Mimas tiliae (L.) Lime Hawk-moth. – Regular in trap 35; occasional in Geescroft; irregular scattered individuals elsewhere.

Smerinthus ocellata (L.) Eyed Hawk-moth. – Regular in traps 1, 6, 7 & 8 from 1933 to 1949; subsequently only in trap 35, one in 1996.

Laothoe populi (L.) Poplar Hawk-moth. – Regular widespread individuals.

Macroglossum stellatarum (L.) Hummingbird Hawk-moth. – One full-grown larva near Barnfield, 1992.

Deilephila elpenor (L.) Elephant Hawk-moth. – Trap 14, six in 1951; regular in MV traps.

NOTODONTIDAE

Phalera bucephala (L.) Buff-tip. – Occasional widespread individuals.

Cerura vinula (L.) Puss Moth. – Seven individuals in traps 6, 7 and 14 between 1946 and 1951. Not recorded since.

Furcula furcula (Cl.) Sallow Kitten. – Trap 1, individuals in 1948 and 1983; trap 6, one in 1947.

Furcula bifida (Brahm) Poplar Kitten. – Trap 1, two in 1935 and one in 1936; trap 6, one in 1946 and one in 1948.

Stauropus fagi (L.) Lobster Moth. – Five in traps 6 and 7, 1946 to 1949; one at site 9 in 1949.

Notodonta dromedarius (L.) Iron Prominent. – Occasional in Geescroft. More frequent in 1930s and 1940s.

N. ziczac (L.) Pebble Prominent. – Occasional at woodland sites. More frequent prior to 1950.

Pheosia gnoma (Fabr.) Lesser Swallow Prominent. – Occasional at woodlands; scattered individuals elsewhere.

P. tremula (Cl.) Swallow Prominent. – Occasional in woodlands; frequent in traps 1, 6, 7 & 8 prior to 1960.

Ptilodon capucina (L.) Coxcomb Prominent. – Frequent at woodland and hedgerow sites; occasional elsewhere.

P. cucullina ([D.&S.]) Maple Prominent. – Regular in woodlands since 1979.

Odontosia carmelita (Esp.) Scarce Prominent. – Trap 50, two in 1992 (Riley & Townsend, 1992a); trap 54, one in 1991.

Pterostoma palpina (Cl.) Pale Prominent. – Regular at woodland and hedgerow sites.

Drymonia dodonaea ([D.&S.]) Marbled Brown. – Trap 1, four in 1935; trap 26, one in 1973.

D. ruficornis (Hufn.) Lunar Marbled Brown. – Occasional at woodland sites.

Clostera curtula (L.) Small Chocolate-tip. – Frequent to 1951. Not recorded since.

Diloba caeruleocephala (L.) Figure of Eight. – Infrequent, mainly in woodlands.

LYMANTRIIDAE

Orgyia antiqua (L.) The Vapourer. – Scattered individuals; mainly Geescroft.

Calliteara pudibunda (L.) Pale Tussock. – Regular at woodland and hedgerow sites.

Euproctis chrysorrhoea (L.) Brown-tail. – Individuals at four sites in 1992 (Townsend, 1993b; Townsend, 1993c),

E. similis (Fuessl.) Yellow-tail. – Widespread and common at woodland and hedgerow sites.

Leucoma salicis (L.) White Satin Moth. – Eight records prior to 1948; one in 1977 and one in 1992.

Lymantria monacha (L.) Black Arches. – Trap 1, one in 1947; site 9, two in 1949; trap 26, one in 1989.

ARCTIIDAE

Thumatha senex (Hb.) Round-winged Muslin. – Occasional scattered individuals.

Eilema sororcula (Hufn.) Orange Footman. – Two unconfirmed and doubtful individuals at traps 14 and 15 in 1951 (Hosni, 1953).

E. griseola (Hb.) Dingy Footman. – Occasional individuals.

E. pygmaeola (Doubl.) Pygmy Footman. – One doubtful and unconfirmed record from trap 1 on 21.vii.1935 (Foster, 1937).

E. complana (L.) Scarce Footman. – Widespread but infrequent.

E. depressa (Esp.) Buff Footman. – One in trap 52 on 29.vii.1990 (Riley & Townsend, 1991a).

E. lurideola (Zinck.) Common Footman. – Widespread and frequent. Common at woodland sites.

Arctia caja (L.) Garden Tiger. – Formerly common in trap 1; subsequently recorded occasionally at most sites.

Spilosoma lubricipeda (L.) White Ermine. – Widespread and frequent.

S. luteum (Hufn.) Buff Ermine. – Widespread and frequent.

Diaphora mendica (Cl.) Muslin Moth. – Widespread and regular.

Phragmatobia fuliginosa (L.) Ruby Tiger. – Widespread and regular.

Tyria jacobaeae (L.) The Cinnabar. – Occasional and widespread; formerly frequent in trap 1.

NOLIDAE

Nola cucullatella (L.) Short-cloaked Moth. – Frequent, mainly at the woodland sites.

N. confusalis (H.-S.) Least Black Arches. – Regular at woodland and hedgerow sites since 1987.

NOCTUIDAE

Euxoa tritici (L.) White-line Dart. – Trap 6, one in 1947 and three in 1948.

E. nigricans (L.) Garden Dart. – Occasional individuals at many sites, including the suction-traps.

Agrotis cinerea ([D.&S.]) Light Feathered Rustic. – Trap 1, one in 1933; trap 6, one in 1950; trap 26, one in 1982.

A. segetum ([D.&S.]) Turnip Moth. – Widespread and regular.

A. clavis (Hufn.) Heart & Club. – Trap 6, individuals in 1948 and 1949; trap 1, occasional to 1981.

A. exclamationis (L.) Heart & Dart. – Widespread and common.

A. ipsilon (Hufn.) Dark Sword-grass. – Occasional throughout.

A. puta (Hb.) Shuttle-shaped Dart. – Widespread and regular.

Axylia putris (L.) The Flame. – Widespread and regular.

Ochropleura plecta (L.) Flame-shoulder. – Widespread and frequent.

Rhyacia simulans (Hufn.) Dotted Rustic. – Occasional scattered individuals, 1973 to date; regular in the suction-traps.

Noctua pronuba (L.) Large Yellow Underwing. – Widespread and common; sometimes abundant.

N. comes (Hb.) Lesser Yellow Underwing. – Frequent throughout; often common at woodland sites.

N. orbona (Hufn.) Lunar Yellow Underwing. – Four unconfirmed and very doubtful records in traps 63 and 65 in 1964.

N. fimbriata (Schred.) Broad-bordered Yellow Underwing. – Regular in woodlands; occasional elsewhere.

N. janthe Borkh. Lesser Broad-bordered Yellow Underwing. – Frequent in woodlands; occasional elsewhere.

N. interjecta (Hb.) Least Yellow Underwing. – Occasional; mainly in woodlands.

Spaelotis ravida ([D.&S.]) Stout Dart. – Occasional individuals; more regular in suction-traps.

Graphiphora augur (Fabr.) Double Dart. – Frequent throughout, though apparently decreasing.

Lycophotia porphyrea ([D.&S.]) True Lover's Knot. – Seven in trap 1 in 1948. Only two records since.

Peridroma saucia (H.b) Pearly Underwing. – Nine records between 1949 and 1990.

Diarsia mendica (Fabr.) Ingrailed Clay. – Frequent throughout; common in woodlands.

D. brunnea ([D.&S.]) Purple Clay. – Common at woodland sites; infrequent elsewhere.

D. rubi (View.) Small Square-spot. – Common throughout.

Xestia c-nigrum (L.) Setaceous Hebrew Character. – Common throughout.

X. ditrapezium ([D.& S.]) Triple-spotted clay. – Twenty unconfirmed records in 1964. Almost certainly erroneous.

X. triangulum (Hufn.) Double Square-spot. – Common at woodland sites; less frequent elsewhere.

X. baja ([D.&S.]) Dotted Clay. – Regular at woodland sites, though never common.

X. rhomboidea (Esp.) Square-spotted Clay. – Four unconfirmed records in 1949. Almost certainly erroneous.

X. sexstrigata (Haw.) Six-striped Rustic. – Frequent throughout, especially woodlands.

X. xanthographa ([D.&S.]) Square-spot Rustic. – Common throughout.

Naenia typica (L.) The Gothic. – Scattered individuals most years.

Eurois occulta (L.) Great Brocade. – Trap 26, one in 1977 one in 1983 and two in 1996; trap 33, one in 1977.

Anaplectoides prasina ([D.&S.]) Green Arches. – Site 9, one in 1949; trap 33, one in 1974.

Cerastis rubricosa ([D.&S.]) Red Chestnut. – Regular, particularly in woodlands.

Discestra trifolii (Hufn.) The Nutmeg. – Regular throughout; infrequent in woodlands.

Hada plebeja (L.) The Shears. – Formerly frequent in trap 1; presently uncommon.

Polia bombycina (Hufn.) Pale Shining Brown. – Frequent to 1949; not recorded since 1986.

P. nebulosa (Hufn.) Grey Arches. – A few records, mainly from woodland sites, to 1981.

Heliophobus reticulata (Goeze) Bordered Gothic. – Frequent to 1948; not recorded since.

Mamestra brassicae (L.) Cabbage Moth. – Regular throughout.

Melanchra persicariae (L.) Dot Moth. – Regular throughout.

Lacanobia w-latinum (Hufn.) Light Brocade. – Regular in 1940s and 1950s; not recorded since 1960.

L. thalassina (Hufn.) Pale-shouldered Brocade. – Regular throughout.

L. oleracea (L.) Bright-line Brown-eye. – Common throughout.

Ceramica pisi (L.) Broom Moth. – Frequent in 1940s; scattered individuals since.

Hecatera bicolorata (Hufn.) Broad-barred White. – Regular and widespread.

Hadena rivularis (Fabr.) The Campion. – Widespread but infrequent.

H. perplexa ([D.&S.]) Tawny Shears. – Regular to 1949; infrequent since; last recorded in 1980.

H. compta ([D.&S.]) Varied Coronet. – Six records since 1972.

H. confusa (Hufn.) Marbled Coronet. – Scattered individuals to 1984.

H. bicruris (Hufn.) The Lychnis. – Regular individuals in Geescroft.

Cerapteryx graminis (L.) Antler Moth. – Regular to 1949; infrequent since.

Tholera cespitis ([D.&S.]) Hedge Rustic. – Frequent in 1940s; a few individuals recorded to 1976.

T. decimalis (Poda) Feathered Gothic. – Common in trap 1 in the 1930s and 1940s; infrequent since.

Panolis flammea ([D.&S.]) Pine Beauty. – Trap 6, one in 1948; trap 52, one in 1990 (Townsend & Riley, 1991a).

Orthosia cruda ([D.&S.]) Small Quaker. – Common and possibly increasing in woodlands.

O. populeti (Fabr.) Lead-coloured Drab. – Occasional individuals.

O. gracilis ([D.&S.]) Powdered Quaker. – Frequent in woodlands; formerly frequent at Barnfield.

O. cerasi (Fabr.) Common Quaker. – Common, especially in woodlands.

O. incerta (Hufn.) Clouded Drab. – Common, especially in woodlands.

O. munda ([D.&S.]) Twin-spotted Quaker. – Regular, mainly in woodlands.

O. gothica (L.) Hebrew Character. – Common, especially in woodlands.

Mythimna conigera ([D.&S.]) Brown-line Bright-eye. – Infrequent in woodlands; often common elsewhere.

M. ferrago (Fabr.) The Clay. – Common throughout.

M. vitellina (Hb.) The Delicate. – Trap 35, one on 26/27.viii.1992.

M. impura (Hb.) Smoky Wainscot. – Numbers fluctuate but usually very common throughout.

M. pallens (L.) Common Wainscot. – Numbers fluctuate but usually very common throughout.

M. comma (L.) Shoulder-striped Wainscot. – Frequent throughout.

Cucullia chamomillae ([D.&S.]) Chamomile Shark. – Traps 6 and 7, individuals in 1946; trap 27, one in 1976.

C. umbratica (L.) The Shark. – Widespread individual records.

Shargacucullia verbasci (L.) The Mullein. – Trap 1, one in 1935; trap 56, one in 1992.

Brachylomia viminalis (Fabr.) Minor Shoulder-knot. – Frequent to 1961; not recorded since.

Brachionycha sphinx (Hufn.) The Sprawler. – Common in woodlands; formerly frequent in trap 1.

Aporophila lutulenta ([D.&S.]) Deep-brown Dart. – Widespread but infrequent.

A. nigra (Haw.) Black Rustic. – Scarce, mainly Geescroft.

Lithophane semibrunnea (Haw.) Tawny Pinion. – Apart from one in 1947, occasional individuals since 1972. Most frequent in suction-traps.

L. hepatica (Hufn.) Pale Pinion. – Trap 30, one in 1989.

L. ornitopus (Hufn.) Grey shoulder-knot. – Regular in woodlands; otherwise infrequent. Only two records prior to 1982.

L. leautieri (Boisd.) Blair's Shoulder-knot. – Regular in most traps. First recorded in 1990.

Xylene exsoleta (L.) Sword-grass. – Trap 1, one in 1946.

Xylocampa areola (Esp.) Early Grey. – Infrequent; mainly in woodlands.

Allophyes oxyacanthae (L.) Green-brindled Crescent. – Common in woodlands.

Dichonia aprilina (L.) Merveille du jour. – Occasional in woodlands.

Drybotodes eremita (Fabr.) Brindled Green. – Regular in woodlands.

Mniotype adusta (Esp.) Dark Brocade. – Frequent in traps 1 and 6 in the 1930s and 1940s. No recent records.

Polymixis flavicincta ([D.& S.]) Large Ranunculus. – Several in traps 1 and 6 in the 1930s and 1940s; traps 26 and 33, individuals in 1983, 1984 and 1989.

Eupsilia transversa (Hufn.) The Satellite. – Common in woodlands; infrequent elsewhere.

Conistra vaccinii (L.) The Chestnut. – Common in woodlands; infrequent elsewhere.

C. ligula (Esp.) Dark Chestnut. – Frequent in woodlands; uncommon elsewhere.

Agrochola circellaris (Hufn.) The Brick. – Common, mainly in woodlands.

A. lota (Cl.) Red-line Quaker. – Regular, mainly in woodlands.

A. macilenta (Hb.) Yellow-line Quaker. – Common, mainly in woodlands.

A. helvola (L.) Flounced Chestnut. – Occasional in Geescroft; formerly more widespread but always scarce.

A. litura (L.) Brown-spot Pinion. – Common, especially in woodlands.

A. lychnidis ([D.&S.]) Beaded Chestnut. – Common, mainly in woodlands.

Atethmia centrago (Haw.) Centre-barred Sallow. – Widespread and regular in woodlands.

Omphaloscelis lunosa (Haw.) Lunar Underwing. – Common, mainly in woodlands.

Xanthia citrago (L.) Orange Sallow. – Regular, mainly in woodlands.

X. aurago ([D.&S.]) Barred Sallow. – Regular, mainly in woodlands.

X. togata (Esp.) Pink-barred Sallow. – Widespread but infrequent; usually woodlands.

X. icteritia (Hufn.) The Sallow. – Regular, mainly in woodlands.

X. gilvago ([D.&S.]) Dusky-lemon Sallow. – Formerly frequent in Geescroft; last recorded in 1978.

Acronicta megacephala ([D.&S.]) Poplar Grey. – Infrequent, scattered individuals.
A. aceris (L.) The Sycamore. – Scarce; six records only.
A. leporina (L.) The Miller. – Infrequent individuals, mainly Geescroft.
A. alni (L.) Alder Moth. – Trap 26, one on 25.vi.1985.
A. tridens ([D.&S.]) Dark Dagger. – Infrequent individuals.
A. psi (L.) Grey Dagger. – Occasional scattered records.
A. rumicis (L.) Knot Grass. – Infrequent but widespread.
Cryphia domestica (Hufn.) Marbled Beauty. – Regular and widespread but in small numbers.
Amphipyra pyramidea (L.) Copper Underwing. – Regular in woodlands.
A. berbera (Rungs) Svensson's Copper Underwing. – Frequent in woodlands; irregular elsewhere.
A. tragopoginis (Cl.) Mouse Moth. – Most frequent in suction-traps; regular and widespread.
Mormo maura (L.) Old Lady. – Infrequent; mainly in Geescroft.
Dypterygia scabriuscula (L.) Bird's Wing. – Scattered widespread individuals.
Rusina ferruginea (Esp.) Brown Rustic. – Common, especially in woodlands.
Thalpophila matura (Hufn.) Straw Underwing. – Frequent throughout, though less so in woodlands.
Euplexia lucipara (L.) Small Angle Shades. – Common, mainly in woodlands.
Phlogophora meticulosa (L.) Angle Shades. – Frequent, especially in woodlands.
Ipimorpha retusa (L.) Double Kidney. – Trap 8, one in 1948; trap 26, one in 1983.
I. subtusa ([D.&S.]) The Olive. – Regular in small numbers in Geescroft. Infrequent elsewhere.
Parastichtis suspecta (Hb.) The Suspected. – Trap 36, one on 20/21.vii.1989.
P. ypsillon ([D.&S.]) Dingy Shears. – Occasional widespread individuals.
Dicycla oo (L.) Heart Moth. – Eleven records, 1933-1952. Not seen since.
Cosmia affinis (L.) Lesser-spotted Pinion. – Regular in woodlands.
C. diffinis (L.) White-spotted Pinion. – Regular prior to 1952; three records since; last 1976.
C. trapezina (L.) The Dun-bar. – Common, particularly in woodlands.
C. pyralina ([D.&S.]) Lunar-spotted Pinion. – Regular, mainly in woodlands.
Apamea monoglypha (Hufn.) Dark Arches. – Common throughout; abundant some years.
A. lithoxylaea ([D.&S.]) Light Arches. – Frequent, particularly in woodlands.
A. sublustris (Esp.) Reddish Light Arches. – Trap 26, one on 23.vii.1996.
A. crenata (Hufn.) Clouded-bordered Brindle. – Regular, mainly in woodlands.
A. epomidion (Haw.) Clouded Brindle. – Regular, mainly in woodlands.
A. remissa (Hb.) Dusky Brocade. – Regular, mainly in woodlands.
A. unanimis (Hb.) Small Clouded Brindle. – Widespread but infrequent.
A. anceps ([D.&S.]) Large Nutmeg. – Frequent throughout.
A. sordens (Hufn.) Rustic Shoulder-knot. – Frequent throughout.
A. scolopacina (Esp.) Slender Brindle. – Occasional individuals.
A. ophiogramma (Esp.) Double Lobed. – Occasional individuals.
Oligia strigilis (L.) Marbled Minor. – Common throughout.
O. versicolor (Borkh.) Rufous Minor. – Recorded occasionally between 1974 and 1993.
O. latruncula ([D.&S.]) Tawny Marbled Minor. – Common throughout.
O. fasciuncula (Haw.) Middle-barred Minor. – Common throughout.
Mesoligia furuncula ([D.&S.]) Cloaked Minor. – Frequent; most common at grassland sites.
M. literosa (Haw.) Rosy Minor. – More common in the 1940s; infrequent recently.
Mesapamea secalis (L.) Common Rustic. – Common throughout.
M. didyma (Esp.) Lesser Common Rustic. – Common throughout.
Photedes minima (Haw.) Small Dotted Buff. – Regular throughout.
Chortodes pygmina (Haw.) Small Wainscot. – One unconfirmed record from trap 1 on 24.ix.1946. The few subsequent records proved to be erroneous.

Eremobia ochroleuca ([D.&S.]) Dusky Sallow. – Scattered individuals; more frequent prior to 1980s.

Luperina testacea ([D.&S.]) Flounced Rustic. – Common, especially at grassland sites.

Amphipoea lucens (Freyer) Large Ear. – Trap 42, one on 23/24.viii.1990 (Riley & Townsend, 1991b).

A. fucosa (Freyer) Saltern Ear. – Trap 6, one on 25/26.viii.1949 (Riley & Townsend, 1991b).

A. oculea (L.) Ear Moth. – Common in trap 49; less so elsewhere.

Hydraecia micacea (Esp.) Rosy Rustic. – Frequent throughout.

Gortyna flavago ([D.&S.]) Frosted Orange. – Infrequent but widespread.

Celaena leucostigma (Hb.) The Crescent. – Trap 37, one on 23/24.vii.1992 (Townsend, 1993a).

Nonagria typhae (Thunb.) Bulrush Wainscot. – Trap 54, one on 19/20.viii.1991 (Townsend & Riley, 1992a).

Rhizedra lutosa (Hb.) Large Wainscot. – Individuals in trap 6 in 1946 and 1947, trap 33 in 1979 and 1987 and trap 58 in 1996.

Charanyca trigrammica (Hufn.) Treble Lines. – Widespread and regular.

Hoplodrina alsines (Brahm) The Uncertain. – Common, particularly in woodlands.

H. blanda ([D.&S.]) The Rustic. – Widespread and regular.

H. ambigua ([D.&S.]) Vine's Rustic. – Widespread but infrequent.

Spodoptera exigua (Hb.) Small Mottled Willow. – Trap 7, one 1947; trap 6, five in 1947; trap 1, two in 1949 and three in 1966.

Caradrina morpheus (Hufn.) Mottled Rustic. – Common throughout.

Paradrina clavipalpis (Scop.) Pale Mottled Willow. – A few scattered individuals.

Chilodes maritimus (Tausch.) Silky Wainscot. – Trap 5, one on 24.vi.1935 (Williams, 1939); trap 38, one on 10.viii.1991 (Townsend & Riley, 1992a).

Pyrrhia umbra (Hufn.) Bordered Sallow. – Trap 6, individuals in 1946 and 1947; trap 8, one in 1948; trap 27, one in 1971.

Heliothis viriplaca (Hufn.) Marbled Clover. – Trap 6, one in 1946; trap 7, one in 1947.

H. peltigera ([D.&S.]) Bordered Straw. – Trap 15, one in 1951.

Protodeltote pygarga (Hufn.) Marbled White Spot. – Trap 26, one in 1975; trap 33, one in 1989.

Deltote uncula (Cl.) Silver Hook. – Trap 6, one in 1947; trap 1, three in 1947, one in 1948 and one in 1970.

Bena bicolorana (Fuessly) Scarce Silver-lines. – Seven records between 1947 and 1978.

Pseudoips prasinana (L.) ssp. *britannica* Warren Green Silver-lines. – Regular in woodlands.

Nycteola revayana (Scop.) Oak Nycteoline. – Regular, mainly in woodlands.

Colocasia coryli (L.) Nut-tree Tussock. – Widespread but infrequent.

Raphia frater Grote The Brother. – Trap 6, one on 3.viii.1949. Only record for the British Isles.

Diachrysia chrysitis (L.) Burnished Brass. – Fairly common, especially in woodlands.

Polychrysia moneta (Fabr.) Golden Plusia. – Infrequent, mainly Geescroft.

Plusia festucae (L.) Gold Spot. – Trap 1, one in 1947; trap 6, one in 1947.

Autographa gamma (L.) Silver Y. – Common throughout.

A. pulchrina (Haw.) Beautiful Golden Y. – Regular, mainly in woodlands.

A. jota (L.) Plain Golden Y. – Regular, mainly in woodlands.

Abrostola tripartita (Hufn.) The Spectacle. – Frequent, mainly in woodlands.

Catocala nupta (L.) Red Underwing. – Infrequent, mainly woodlands.

Tyta luctuosa ([D.&S.]) The Four-spotted. – Frequent in trap 1, 1933 to 1948; six records from traps 6, 8 and 14 between 1946 and 1952.

Lygephila pastinum (Treit.) The Blackneck. – Trap 14, one in 1951; trap 26, one in 1976.
Scoliopteryx libatrix (L.) The Herald. – Regular in Geescroft; occasional elsewhere.
Laspeyria flexula ([D.&S.]) Beautiful Hook-tip. – Regular, especially woodlands.
Rivula sericealis (Scop.) Straw Dot. – Regular and widespread. Most frequent in woodlands.
Parascotia fuliginaria (L.) Waved Black. – Four records from Geescroft, 1966 to 1986.
Hypena crassalis (Fabr.) Beautiful Snout. – Trap 26, one in 1985.
H. proboscidalis (L.) The Snout. – Common, especially in woodlands.
Zanclognatha tarsipennalis (Treit.) The Fan-foot. – Common, especially in woodlands.
Hermina grisealis ([D.&S.]) Small Fan-foot. – Common, especially in woodlands.

Discussion

This list is a result of 63 years of almost continuous sampling of Lepidoptera on the Rothamsted Estate. It catalogues probably the most intensive sampling of this Order ever undertaken in any part of the British Isles, if not the world. A total of 656,444 individuals from RIS traps are recorded on the Insect Survey database and many more from different designs of trap have been examined.

The total of 452 species compares favourably with many county lists. As such, it is probably as comprehensive as one could hope to compile for any discrete area. Previously unrecorded species are now added only very rarely and it is probably safe to assume that virtually all the resident species are represented here. Perhaps more importantly, those species that formerly occurred on the Estate, but no longer do so, are also documented. The reasons for their decline and probable extinction can now be discussed – an important consideration when dealing with the conservation of semi-natural habitats in an agricultural landscape.

Since the 1940s, agricultural intensification on the Estate has been significant. It is therefore perhaps surprising that, in the first half of the trapping period (1933 to 1964), there were fewer (27) species recorded exclusively during that time than during the years 1965 to 1996 (33 species). However, this is almost certainly the result of more intensive and widespread sampling in recent years rather than any improvements in the general habitat. Of those species not recorded since 1964, some speculative explanations can be made.

Several of the species that have not been recorded recently are associated with specific trees. For example, *C. vinula, F. bifida* and *C. curtula* on *Populus* and/or *Salix* and *C. diluta* and *H. roboraria* on *Quercus*. The reduction or removal of these trees almost certainly accounts for the loss of the moths. In a more general sense, the removal of hedgerows containing *Crataegus* and *Prunus*, and the removal of an orchard from near Barnfield has probably contributed to the loss or rarity of *M. neustria* and *G. quercifolia*. Nine species (*S. bipunctaria, C. rubidata, C. olivata, C. multistrigaria, H. reticulata, L. w-latinum, B. viminalis, M. adusta* and *T. luctuosa*) associated more or less specifically with calcareous grassland, downland and scrub disappeared during the 1940s and 1950s. Prior to this, Harpenden Common extended into the Estate, providing the required habitat for these species. The subsequent expansion of intensive arable agricultural development has almost certainly accounted for their loss. Several other species associated with downland or

permanent grassland have also declined but are still recorded in small numbers. They probably remain present on Harpenden Common and occasionally wander, or are blown, onto the Estate. In all, 31 species appear to show a significant decline in numbers over the sampling period whereas only six (*I. trigeminata, E. dodoneata, T. juniperata, O. cruda, L. ornitopus* and *L. leautieri*) have invaded or increased. These observations are related to a general decline in the presence and quality of semi-natural habitats in this area. Four other species (*S. ligustri, D. oo, C. diffinis* and *X. exsoleta*) were lost during the 1940s but each apparently has undergone a national decline. A more detailed statistical analysis of these trends is in preparation.

Recognition of the importance of semi-natural habitats for maintaining biodiversity and protecting sensitive species and assemblages on agricultural land has increased in recent years. Further, establishment of set-aside and other changes in farming practices, as well as predicted climate change, will undoubtedly affect Lepidoptera and other groups. In order to assess the biological and ecological effects of these changes, long-term monitoring projects, such as the RIS, will continue to provide vital information.

Acknowledgements

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Two new and surprising records of the ant lion *Euroleon nostras* (Geoffroy in Fourcroy) (Neur.: Myrmeleontidae) in southern England

On the morning of 2 September 1998, Gill Hollamby and DW were surprised to discover an adult ant lion *Euroleon nostras* near to the m.v. light trap in the garden of Dungeness Bird Observatory, East Kent. The specimen was photographed before release and the identification was confirmed, from the resultant images, by CWP. Four days later, CWP received a telephone call from Colin Milkins of St Leonard's-on-Sea, East Sussex, to say that he had encountered an adult of the same species in a spider web in his garden on 6 September 1998. This record was particularly interesting since, apart from it being of a second specimen in the same general area of southern English coast in four days, Mr Milkins was of the opinion that its wing was deformed – something which would suggest that it would be unable to fly and was probably a locally bred insect. This specimen was subsequently seen by CWP; both the identification and the teneral nature of the insect were confirmed. The specimen is deposited in CWP's collection.

Euroleon nostras was not formally added to the British fauna until 1996 when it was discovered at the RSPB reserve at Minsmere, East Suffolk (Mendel, *Ent. Rec.* **108**: 1-5). Since then, it has been the subject of an intensive study by CWP, funded by English Nature, RSPB and CWP. This work (Plant, 1997. *Investigations into the distribution, status and ecology of the ant-lion* Euroleon nostras *(Geoffroy in Fourcroy, 1785) (Neuroptera: Myrmeleontidae) in England during 1997* – unpublished full report in

library at English Nature, Peterborough and an edited version bearing the same title in Plant, 1998. *Suffolk Natural History* **34**: 69-79), indicates that a resident population has been present on the Suffolk Sandlings since 1929 but also that the British population of this species is confined to that area. Although adult *E. nostras* are agile fliers amongst the branches of the pine trees (Yasseri, 1991. *Naturschutze und verhaltten Zeitschrift Seevögel* **12**: 123-126) which they visit to mate, they fly only slowly and are poor dispersers (eg. Brodsky, 1994. *The evolution of insect flight*. OUP). In times of super-abundance when all available breeding habitat is already occupied, gravid females may fly up to about twenty miles or so but this is exceptional. In spite of intensive searching of the east and south coastal areas of Britain, no further colonies of *E. nostras* have been located.

The origin(s) of the two south coast specimens requires some consideration. As a strongly thermophilic species, *E. nostras* is likely to spread north if global warming is a reality, though the English Channel and the lack of sites with both sand and mature Scots Pine trees may present obstacles to the colonisation of Britain. Rather few immigrant Lepidoptera were in evidence in the days immediately surrounding the two records, though a Great Dart *Agrotis crassa* (Hb.) was taken at Dungeness two weeks earlier and an Oak Processionary *Thaumetopoea processionea* (L.) was noted only one week earlier (B. Skinner, *pers. com.*); both probably originated in the Channel Islands where *E. nostras* is present and has recently spread from Jersey to Guernsey and Herm (C. David, *pers. com.*). It seems rather unlikely, however, that this ant lion could migrate over that distance and if immigration is the source, then the adjacent French coastline is a far more likely origin. The St Leonard's specimen at least, however, was teneral, and so must have been bred locally.

The work on the Suffolk Sandlings suggests that, as in continental Europe, *E. nostras* has a two-year life-cycle, spanning three calendar years with eggs laid in August/September of year one and adults emerging in the same period in year three. The St Leonard's specimen must, therefore, result from a gravid female present in 1996 and the same must also apply to the Dungeness specimen if it was locally bred. 1996 was also the year that the species was confirmed as British and though it is stretching a point, this may suggest that 1996 was a year of super-abundance such that the resident population, present since 1929, rose to a sufficiently high level that detection by mere humans became possible. If this is truly the case, then one might reasonably expect a similar situation in Europe, so that the possibility of a few females surviving their random dispersal across the English Channel to encounter by chance a small area of suitable sand in which to lay their eggs becomes more likely. The species is present in most suitable localities along the coast of France (see map in Aspöck, Aspöck & Hölzel, 1980. *Die Neuropteren Europas*. Goeke & Evers); Dungeness to the nearest point of France (Cap Griz-Nez) is 40 kilometres (about 24 miles).

Clearly, it is well worth searching suitable sandy sites in south-eastern coastal England for this species during 1999, especially those with a presence of tall Scots Pines. The larval pits ought to be in evidence by May and are easily spotted when one has "got one's eye in". It may be of note that Camber Sands, a potentially suitable

breeding site, lies mid-way between Dungeness and St Leonard's, though in Suffolk very small areas of sand, especially those on the root plates of fallen trees, are usually more productive and exposed areas are rarely utilised. It would be greatly appreciated if CWP could be informed of any further discoveries of this species in Britain.– COLIN W. PLANT, 14 West Road, Bishops Stortford, Hertfordshire, CM23 3QP and DAVID WALKER, Dungeness Bird Observatory, Romney Marsh, Kent TN29 9NA.

Recent records of *Medon pocoferus* (Peyron) (Col.: Staphylinidae) in Dorset

I first came across this beetle on a visit with my wife to Durdle Door in Dorset in March 1990. Several specimens were encountered by digging with hands in coarse shingle where it met with rock at the foot of the cliffs rising above the beach. On a second visit in August 1998 with my friend Tony (A.J.W.) Allen, the beetle was found in the same situation. On both occasions, the beetles were accompanied by examples of *Bembidion nigropiceum* (Marsham), one of the less common members of this carabid genus.

In Britain, *M. pocoferus* is known mainly from coastal sites in the south of England where it occurs in shingle at or above high tide mark. As far as Dorset goes, I have a specimen collected by P. Harwood in March 1931 with a locality given simply as "Holworth". The O.S. map marks a village with this name in Dorset a short distance to the west of Durdle Door. The village is about two miles away from the sea but it is likely that Harwood labelled the specimen with the name of the nearest community to the sea at this point.– JOHN OWEN, 8 Kingsdown Road, Epsom, Surrey KT17 3PU.

Investigations into the feeding habits of Kampods (Diplura: Campodidae)

From the literature it is known that kampods are omnivorous yet little is known of the detail of their diet. From 1988 to 1990, inclusive, kampods were sampled in the Kragujevac region of Yugoslavia twice per moth by collecting soil samples in oak *Quercus* forest and in hilly meadows. At each sample station the soil temperature was recorded at 5 cms depth and a separate sample was taken for determination of moisture content. From the samples, 1556 individual kampods were isolated by use of a Tullgren-Berlese apparatus; these comprised four species, namely *Campodea (Dicampa) campestre* Ionescue (160 examples), *C. (D.) frenata* Silvesti (294 examples), *C. (D.) suensoni* Tuxen (970 examples) and *Podocampa serbica* Karaman & Blesić (132 examples).

Only 898 of the collected kampods contained food in the analysed mid-section of their gut. This food was comprised of four principal types – detritus, soil fungi, algae and arthropod prey. The great majority (94%) contained detritus and this food was represented in samples throughout the year. Less than half this number (460) were feeding on soil fungi. Of this latter group, 337 contained fungal hyphae and 123 contained spores. Fungal species identified in the guts were *Chetonium* sp. and *Melanospora* sp. (both Phycomycetes).

Algae were present in only 0.4% of the examined guts and these only from the meadow samples. Both fungi and algae were represented in samples from both spring and autumn in the soil temperature range 8 - 15°C and the soil moisture range 2 - 4%. Arthropod food was represented in 15% of individuals and largely comprised other kampods – both of the same and different species. Also represented were Acari, Diptera larvae and Protura. Arthropod food featured mostly during the summer when the soil temperature at 5 cms depth was higher, in the range 29 - 32°C and the moisture content was reduced (about 3%). The findings are analysed in table 1.

Table 1: Analysis of contents of mid-gut of kampods from Kragujevac, 1998 - 1990.

Gut contents	Number of individuals
detritus	844
fungal hyphae	337
fungal spores	123
green algae	2
silaceous algae	2
Protura	15
Acari	32
Diptera larvae	23
other kampods	66
All	1476

It is evident that the majority of sampled kampods feed on detritus all year but when the soil is wet their diet also includes fungi – principally in spring and autumn. When the soil is drier, arthropod prey forms a more significant part of the diet.– BELA BLESIĆ, Faculty of Science, University of Kragujevac, 34000 Kragujevac, Yugoslavia.

An unusual habit of *Micropterix tunbergella* (Fabr.) (Lep.: Micropterigidae)

At about midday on 27 April 1998 I was visiting Homefield Wood nature reserve on the Chiltern Hills near Marlow in Buckinghamshire. Whilst there I examined the trunks of some smallish beech *Fagus* trees near the entrance to the reserve; my intention was to search for larvae of psychid moths. My attention was soon drawn to a small metallic microlepidopterous imago that I first took to be an eriocranid. However, I soon realised that this was *Micropterix tunbergella* and that, indeed, there were numerous examples of this species at rest on, and in flight around, these and other tree trunks to a height of two metres or so. The majority were to be found within a foot or so of ground level and all were in perfect condition indicating that they had not long emerged.

The adults of this primitive species have mandibles in place of a haustellum and are stated to feed on the pollen of oak *Quercus* and sycamore *Acer pseudoplatanus* flowers (Heath & Emmet, 1976. *The moths and butterflies of Great Britain and Ireland* **1**). Despite searching for this moth on flowers of these trees in season (this is an earlyish date) for the past three or four years the only individuals I have come across were two the previous year on cherry laurel *Prunus laurocerasus* flowers and foliage at a locality about two miles from this one.

Other members of the genus feed on the pollen of hawthorn *Crataegus* and buttercup *Ranunculus* but I could not locate any of these in flower near this locality at the time and there were no oaks or sycamores in flower at this early date. This raises the interesting question of what these adult moths were feeding on. The only obvious source of pollen nearby was sallow *Salix* spp., and I searched these without success. Could the moths have been feeding on the dusty algal growth that was growing abundantly on the beech trunks at this height? This has a consistency similar to pollen and was perhaps being consumed.

I have evidence that this attraction to tree trunks was not an isolated event brought on, perhaps, by the weather conditions on the day (sunny and hot with intermittent heavy rain showers). Knowing that this was a species which Dennis O'keeffe was looking for I telephoned him that night. The following day (overcast) we visited the locality at the same time of day and observed the same behaviour. Unfortunately I did not think to examine the resting adults close enough to investigate if they were feeding on the algae, but will clearly do so if the opportunity arises again. It is unlikely that they were emerging from subterranean pupae and crawling up the trunks to expand their wings during my visits as all the individuals seen (30 or so) had fully expanded wings and were capable of flight if disturbed.– IAN SIMS, 2 The Delph, Lower Earley, Reading, Berkshire RG6 3AN.

A note on the apparent rarity of *Rhamphomyia* (*Holoclera*) *variabilis* (Fln.) (Dip.: Empididae) in Kent.

On page 404 of his monograph (Collin, 1961 *Empididae* in *British Flies* **VI**, 782 pp., Cambridge) J.E. Collin stated that "*R. variabilis* is a common and widely distributed species to be found from the south coast of England to Aberdeen, Elgin and the Isle of Lewis in Scotland. It has also been taken in Wales and Ireland...". It is therefore interesting to note that of over 2000 records for the family Empididae s.s. which have been personally amassed for the county, only six pertain to *Rhamphomyia variabilis*. These were all from a survey of the Mereworth Woods complex in Vice-county 16 undertaken for the Kent Wildlife Trust during 1994. The data are: 13.viii.1994 Mereworth Woods O.S. grid reference TQ 642546; 28.viii.1994 Mereworth Woods, TQ 663553 and TQ 655559; 28.viii.1994 Roadside Wood TQ 647552; 3.ix.1994 Mereworth Woods, TQ 638534 and Peckham Hurst, TQ 638535.

An examination of the records contained in the personal card index file of the late K.C. Side housed at Maidstone Museum revealed two others, one from Hurst Wood (also part of the Mereworth Woods complex) TQ 6255 on 1.ix. 1975 and the other from Bedgebury, TQ 7233 on 29.viii. 1973.

Mr A.A. Allen (*in litt.* 1 June 1998) referred to the very local nature of the fly in the Blackheath area of south-east London. He said that it was constantly met with on the flowers of *Solidago canadensis* L. in his former garden at Blackheath, a few occurred in his present address at Charlton but soon disappeared with the reduction of the plant and had seen only one other, at Blackheath some ten years later.

Collin's records dated from 26 July to 1 October and the above data confirm that *R. variabilis* is a late summer – early autumn species. This fact alone cannot for its apparent rarity as much collecting has been done within the similar Blean Woods complex north and east of Canterbury during the same period. Furthermore it is quite a conspicuous medium-sized empidid having a brownish body and yellowish legs. It may be yet another case of an insect being regarded as common on the basis of a restricted sample of sites.– LAURENCE CLEMONS, 14 St. John's Avenue, Sittingbourne, Kent ME10 4NE.

The Shetland Biological Records Centre

Shetland Biological Records Centre was established in 1998 to collate biological records in one of the most important wildlife areas in the British Isles. With the help of Shetland Entomological Group, we aim to create a comprehensive database of entomological records for Shetland. We are very keen to hear from anyone who may have made a trip to Shetland in the past, and who may have potentially interesting and valuable records which we are unaware of. We would also like to encourage anyone planning a visit to Shetland to lodge a copy of any wildlife records with us. Issues such as data ownership, confidentiality etc. will be respected as a priority, where appropriate, and all records will be acknowledged.

Finally we wish to contact two people who are believed to have collected information about Shetland's invertebrate populations: Jon Daws from Leicestershire and Neil Marks from Norfolk. If anyone can put us in touch with these two, or if they are readers, we would be delighted to hear from them.

If you can help, or if you would simply like more information about the project, please contact me.– ROGER RIDDINGTON, Shetland Biological Records Centre, 22-24 North Road, Lerwick, Shetland ZE1 0NQ.
(01595 694688; email: shetamenity.trust@zetnet.co.uk).

New aberration of Dingy Skipper *Erynnis tages* (L.) (Lep.: Hesperiidae)

The Dingy Skipper *Erynnis tages* is represented over most of its British and Irish range by subspecies *E. t. tages* (L.) which is predominantly single-brooded and characterised by a dark grey-brown ground colour with paler transverse forewing bands. Though minor variation in ground colour and markings is common, and Irish subspecies *baynesi* Huggins and second brood specimens show regional and seasonal differences, major aberrations are rare and involve diminution or expansion of the pale transverse bands (Russwurm, 1978. *Aberrations of British Butterflies*, E.W. Classey; Emmet & Heath, 1990. *The Moths and Butterflies of Great Britain and Ireland*. Vol. **7** (1), Harley Books).

On 1.vi.1996 an exceptionally pale-looking *E. tages* was noticed flying on a cleared slope within Combe Wood, Berkshire (51° 20′ N, 1° 29′ W) and netted for closer examination. Though the entire underside and hindwing uppersides were typical in colour, the forewing uppersides were predominantly pale ochreous cream, with the areas corresponding to the usual ground colour being very pale brown and obscure on the left side and virtually indiscernible on the right. The individual showed no visible wear and tear and the presence of forewing costal folds established it to be male.

The aberration does not correspond to any named form (Russwurm, 1978; Emmet & Heath, 1990) and was retained as a voucher. However a specimen listed by Worldwide Butterflies (1995. *British Butterfly Aberrations*) and described as "basically off white with some darker markings", though not figured and now in private possession (Robert C. Goodden, *pers. comm.*), may represent a related phenomenon affecting the entire upperside and possibly the underside. Since even aberrations of limited visual appeal can provide insights into pattern development and evolution (Nijhout, 1991. *The Development and Evolution of Butterfly Wing Patterns*. Smithsonian Institution Press; Winokur, 1996. *Br. J. Ent. Nat. Hist.* **9**: 193-195), the documentation of full descriptions is encouraged in order that comparative information should not be lost.– L. Winokur, 8 Parklands Close, Chandlers Ford, Eastleigh, Hampshire SO53 2EQ.

Some interesting records of moths in the Isle of Wight in the winter of 1998-99

December was a very mild and wet month with a couple of dry and cold spells. On 13 December Brian Warne took *Orthosia cerasi* (Fabr.) at light at Binstead and on 30 December he recorded *Apocheima pilosaria* (D.&S.) at the same locality. Both these species normally emerge in the spring and so are exceptionally early by about three months.

On 20 December a beautiful dark example of *Chrysodeixis chalcites* (Esp.) emerged from its pupa spun up in nettle *Urtica dioica*. I found the half grown larva on Spanish celery which I bought at the local Somerfields supermarket at Freshwater on 19 November. It fed up quickly, first on celery then on nettle and pupated on 7 December, in which stage it remained for only 13 days. On 22 November I found a fully grown larva of *Heliothis armigera* (Hb.) in a Spanish pepper also at the same supermarket. This soon pupated and emerged on New Year's Day.

I should also mention some late migrants. On 9 December I recorded *Peridroma saucia* (Hb.) and the pyralid *Udea ferrugalis* (Hb.). On 14 December I recorded a perfect specimen of *Mythimna unipuncta* (Haw.) which could have been a locally bred example and on 21 December I found a well-marked *Peridroma saucia* which had been attracted to an outside electric light at the Freshwater Conservative Club.– S.A. Knill-Jones, Roundstone, 2 School Green Road, Freshwater, Isle of Wight.

MORDELLISTENA PSEUDOPARVULA ERMISCH (COL.: MORDELLIDAE) NEW TO BRITAIN

J.A. Owen

8 Kingsdown Road, Epsom, Surrey KT17 3PU.

M. PSEUDOPARVULA was described by Ermisch (1956) from a single male taken at Boppard, West Germany in 1939. It is recorded as close to *M. parvula* Gyllenhal from which it can be separated by the shape of the side border of the pronotum. The elytral pubescence is described as blackish or dark grey. Figures of the genitalia, however, are not provided.

In the same article, lower down on the same page, Ermisch described *M. parvuloides* apparently from a single female taken at Lucca, Italy. The description implies a close external similarity to *M. pseudoparvula* but with dull yellow or dull red elytral pubescence in place of the dark pubescence described for *M. pseudoparvula*. Again, the description is not accompanied by figures.

Recently, Horák (1996) in the course of revising the Palaearctic species of *Mordellistena* re-examined specimens in the Ermisch collection now in the Staatliches Museum für Tierkunde, Dresden. A summary of his relevant findings is presented here because the article containing his conclusions has proved difficult to obtain.

Horák recorded that the Ermisch collection contains a male *M. pseudoparvula* labelled holotype. He found the latter to be in a dirty state and removal of the dirt revealed a reddish-brown elytral pubescence rather than the dark pubescence ascribed to *M. pseudoparvula* by Ermisch.

Horák found that the collection also holds two specimens, a male and a female, standing as *M.parvuloides*. The female was labelled holotype but the male was not so labelled and, in fact, proved to be a male of *M. bicoloripilosa* Ermisch, 1967. Finding himself unable to establish any external features distinguishing the female, Horák concluded that it was another example of *M. pseudoparvula*. This, together with the apparent absence of a male *M. parvuloides* holotype, lead him to the conclusion that *M. parvuloides* Ermisch, 1956 was a junior synonym of *M. pseudoparvula* Ermisch, 1956.

One problem in accepting this conclusion is the publication of figures, stated to represent the parameres of *M. parvuloides* and different from those provided for *M. pseudoparvula*, in the key provided by Ermisch (1967). Horák does not comment on this. A mis-identification of the male from which the figures were obtained seems a possible explanation. (The male standing as *M. parvuloides* in the Ermisch collection was another species). Batten (1986), too, presents figures of the parameres of *M. parvuloides* but close inspection suggests that his figures are based on those provided by Ermisch (1967). Should a male specimen labelled *M. parvuloides* by Ermisch turn up in future, the status of *M. parvuloides* will have to be re-assessed but until this happens it seems best, on balance, to accept Horák's synonymy.

Among a number of beetles received by the present author from a Malaise trap set near Santon Downham (VC28, West Norfolk) during August 1983 was a male

Mordellistena which, apart from having dull golden elytral pubescence, fitted the description of *M. pseudoparvula* in the key given by Ermisch (1967). At the time, the specimen was submitted to Dr Batten, Middelbourg who returned it as *M. pseudoparvula*. In further confirmation of its identity, the specimen was found to agree well with the description of this species, including the figures for genitalia, provided recently by Horák (1996).

There can thus be little doubt that this beetle is an example of *M. pseudoparvula* Ermisch, 1965, apparently the first example of the species to be recognised in Britain. Publication of the record was held back pending further evidence that the beetle was established here. Confirmation of this is now to hand for my friend Mr A.A. Allen recorded (Allen, 1986) a single female of what was then taken to be *M. parvuloides* from Shooter's Hill (VC16 West Kent) in July 1985. This, in the light of Horák's findings, must now by regarded as the second British specimen of *M. pseudoparvula*. Further records of the species in Britain have been obtained recently by my friend Peter Hodge (Hodge, *in press*).

Acknowledgements

My thanks are due to Dr Jeremy Field for the opportunity to examine beetles from his Malaise trap collections, received through the courtesy of Dr Mark Shaw, to Dr Batten, Middelbourg, for his opinion on my specimen of *M. pseudoparvula,* to Dr J. Horák and Dr A. Lebeda, Prague for providing me with copies of Horák's paper, to Mr P. Hodge for allowing me to refer to recent captures and to Miss Birit Pedersen, Librarian at the Royal Entomological Society for help with other references.

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EDITORIAL NOTE: READERS SURVEY

It is hoped that an analysis of the recent reader survey may be ready in time for a summary to appear in the next issue. Anyone who has not yet returned their completed questionnaire is asked to do so at once.

Comment on *Adela cuprella* ([D.&S.]) (Lep.: Incurvariidae) in Berkshire

I can understand Mr Sims' pleasure (*Ent.Rec.* **110**: 287) at seeing *Adela cuprella* for the first time; its splendid livery really shines with a warm coppery glow in incident light and then, when dancing round the tops of sallow trees, they are more akin to specks of soot with the motion of a yo-yo. However, to say that *A. cuprella* had not hitherto been recorded from Berkshire in spite of being mapped for VC22 in *Moths and Butterflies of Great Britain and Ireland* **1** (Harley Books) was truly amazing. I am not sure whether this statement is a bigger slight on the integrity of John Heath and Ted Pelham-Clinton (the authors of the Incurvariid chapter in *MBGBI* **1**) or on that of the local recorders. The basis for the record from VC22 in *MBGBI* **1**, and incidentally, the two Berkshire 10km square records shown on page 21 of *Preliminary Atlas of the Lepidoptera: Incurvarioidea of the British Isles* (1986, BRC, Monks Wood), are specimens collected by H.L. Dolton from "Streatley Hill, Berks" (1945) and "Sulham Woods, Berks" (no date) which, according to the then deputy director, B.R. Baker (*in litt.* 8.vi.1964), were present in Reading Museum at that date and presumably are still there!– K.P. BLAND, National Museums of Scotland, Chambers Street, Edinburgh EH1 1JF.

***Prionus coriarius* (L.) (Col.: Cerambycidae) in Hampshire and the New Forest.**

In March 1997 (*Ent. Rec.* **109**: 64) I drew attention to the fact that this spectacular beetle had not been recorded from Hampshire since before 1970 (Hyman & Parsons, 1992. *Review of the scarce and threatened Coleoptera of Great Britain. Part 1.* UK Joint Nature Conservation Committee, Peterborough). Further to my capture of a specimen in Denny Wood, New Forest (grid reference SU 335065) on 8 August 1996, I asked if this single specimen did no more than highlight under-reporting, or whether the beetle was increasing its range. Since then I have been informed by Philip Budd that he had taken specimens at m.v. light in Roydon Woods, New Forest (SU 305005) on 18 March 1991 and 20 July 1998. He had also taken a specimen at Durley, near Eastleigh, Hampshire (SU 519182) on 3 August 1990. Another specimen was found at Mayfield Park, Southampton (SU 450104) on 8 September 1986. In July 1998 I was informed that the Forest Rangers had found a specimen in Hollands Wood, New Forest (SU 305050). As the three New Forest sites – Denny Wood, Roydon Woods and Hollands Wood – are less than three miles from each other, and the two other Hampshire sites are only a few miles from the New Forest, it would appear that *P. coriarius* is established in this area.– MICHAEL A. SALMON, Avon Lodge, Woodgreen, New Forest, Hampshire SP6 2AU.

BOOK REVIEWS

The colour identification guide to moths of the British Isles by **Bernard Skinner**. Illustrated by David Wilson. Second (revised) edition, 1998. 275 pages, 43 full-page colour plates, numerous illustrations in text. 246 x 198 mm, hardbound with dust-wrapper. ISBN 0 670 87978 9. Viking. £45.

It is hard to believe that some fourteen years has elapsed since "*Skinner*" first rolled off the printing press back in 1984 and surely there can scarcely be a single lepidopterist in Britain who does not have his or her copy? Since that date, however, there have been a number of changes in the moth fauna of Britain, with several newly resident or newly established species and, of course, constantly altering patterns of immigration – perhaps associated with global warming, perhaps not. It is inevitable, therefore, that even the best of identification guides will, in time, become "out of date" and command that a revision is necessary. Such a revision is needed long enough after the first edition both to find all the small errors and to allow for significant changes in the fauna to take place and be detected but it should not be so long after that the first work has already become unusable. This is that revision and in my opinion it is perfectly timed. The fact that over a thousand copies have already sold to a market that must surely already be saturated by the first edition is proof enough to me that others agree.

The new edition is six pages of text and one colour plate longer than the first. Several species accounts have been updated and expanded with additional information and records. A number of additional species have been inserted into the text in the correct position. The new plate, numbered 43, superbly (as always) captured on film by David Wilson, illustrates several species absent from the first edition as well as some striking aberrations, the latter presumably included to minimise the chances of captured examples being wrongly identified as different species. In spite of recent developments in moth taxonomy the scientific names used in the book are unaltered. This was surely a wise decision. Those who understand the intricacies of nomenclature are likely in any case not to be those who need this book; those who do not will want to avoid all possibility of confusion.

There is little to criticise in this new edition; all of the niggling little errors in the first edition seem to have been eliminated. Thus, for example, the Common Rustic is now described as being usually larger than the Lesser Common Rustic rather than, incorrectly, the other way around in the first edition, and figure 7 on plate 41 is now correctly labelled as a Golden Twin-spot not as a Tunbridge Wells Gem; a real example of this latter species appears as figure 38 on new plate 43. It is rather unfortunate that in the review copy the coloured plates are somewhat paler than those in the first edition. This is not a major problem but some of the moths do appear much less striking than in real life. Presumably this is something to do with the printing and absolutely no blame can be laid at the feet of either the author or the photographer; the original plates were quite satisfactory. It is hard to understand, however, how such a situation can arise with all the modern printing technologies in place.

Those who are newcomers to the study of moths should have no hesitation in buying a copy. To those who already possess the first edition and have suggested to me that purchasing the new version is not necessary, I would suggest that they think again if they are serious about their subject. The natural world is not a stable system – things change and that includes both the moths and the techniques of identification; keeping up to date with the literature is an essential part of any scientific pursuit and the (largely amateur) study of British Lepidoptera is no exception to this.

Colin W. Plant

THE ENTOMOLOGIST'S RECORD
AND JOURNAL OF VARIATION
(Founded by J.W. TUTT on 15th April 1890)

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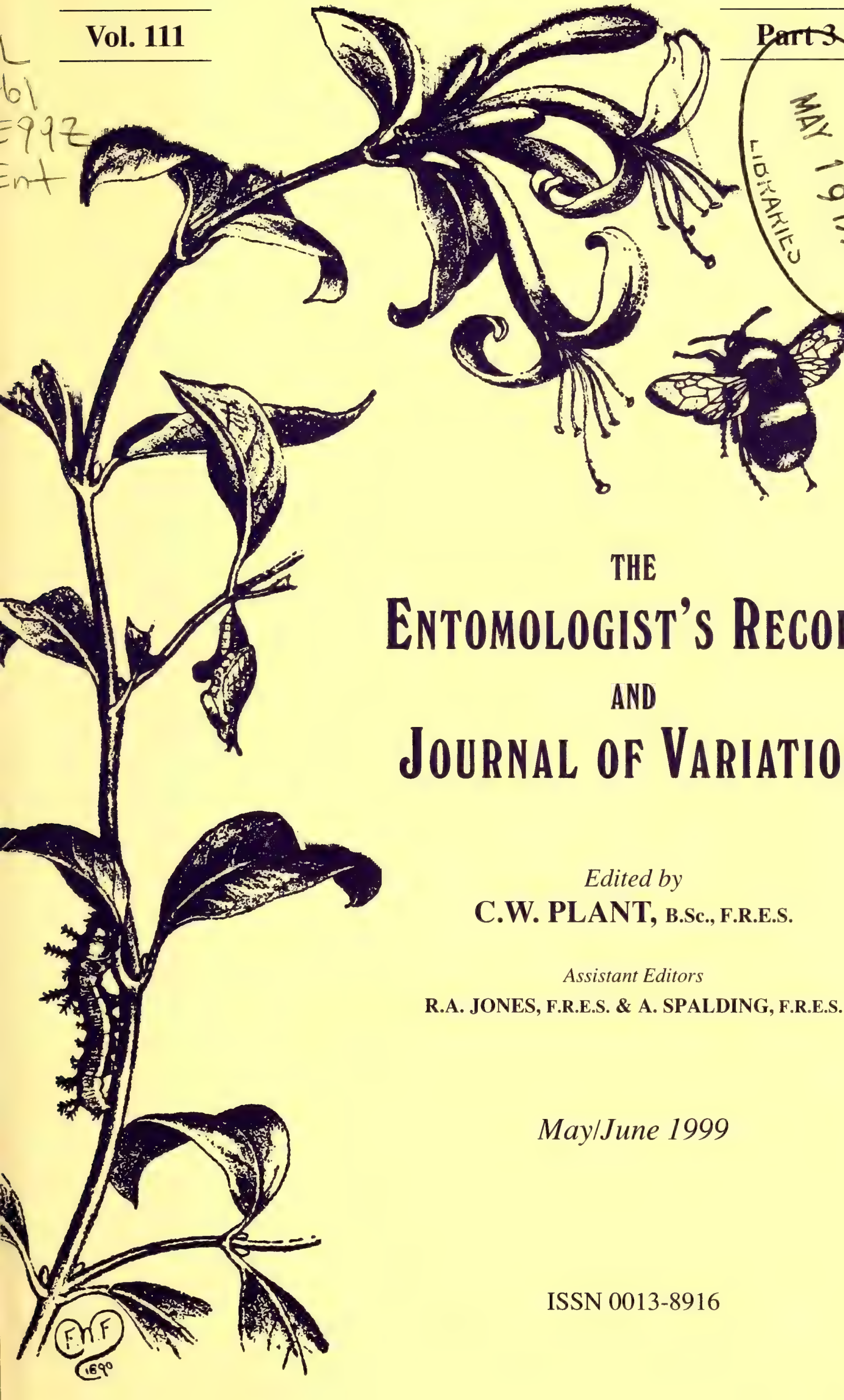

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MICROLEPIDOPTERA REVIEW OF 1997

J.R. LANGMAID[1] AND M.R. YOUNG[2]

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COMPARED WITH OTHERS in the past decade 1997 was not a particularly good year for Microlepidoptera, A.M. Emmet describing it as possibly the worst year in living memory for leaf-mines. Nevertheless, a considerable number of new vice-county records were made, and several species are new to the component countries of the British Isles.

Argyresthia cupressella Walsingham, a North American species, was found in some numbers in south-east Suffolk, just reaching Essex, and is new to this side of the Atlantic. Also new to the British Isles are *Eustixia pupula* Hübner, from a light trap at Southampton and *Vitula edmandsii* (Packard), a single specimen of which was taken at Spurn, Yorkshire. This latter pyralid moth has been extending its range in northern Europe, and could become established here.

Three species, *Epiphyas postvittana* (Walker), *Apomyelois bistriatella* (Hulst) and *Marasmarcha lunaedactyla* (Haworth) have been found new to Ireland. New to Wales are *Coleophora silenella* Herrich-Schäffer, *Depressaria sordidatella* Tengström and *Anarsia lineatella* Zeller. *Bactra lacteana* Caradja is recorded new to Scotland, and has also been found in Sussex, following R.J. Heckford's discovery of the species in Britain in 1996. His careful field-work and subsequent publication will surely result in this species being found in many other places. A specimen of *Scythris empetrella* Karsholt & Nielsen was taken at Findhorn in 1983 but only identified in 1997; a surprising addition to the Scottish list for a species previously thought to be confined to southern England. Also new to Scotland is *Mompha langiella* (Hübner).

P.H. Sterling's field-work on *Acrolepiopsis marcidella* (Curtis) and *Cosmopterix scribaiella* Zeller has resulted in these species being found in several new localities and, together with R.J. Heckford, he has also rediscovered a breeding colony of *Stenoptilia pneumonanthes* (Büttner) in Dorset.

Following the discovery by D. Hipperson of *Duponchelia fovealis* Zeller in Norfolk in 1996, a further specimen has been recorded from Essex, raising the possibility that this species may become established in East Anglia.

Thanks are due to those who have contributed records, and, as usual, they are identified by their initials: D.J.L. Agassiz, H.E. Beaumont, K.P. Bland, K.G.M. Bond, M.R. Britton, A.M. Davis, B. Dickerson, A.M. Emmet, R. Fairclough, B. Goodey, M.C. Harvey, R.J. Heckford, R.I. Heppenstall, S.H. Hind, D. Hipperson, S.A. Knill-Jones, J.R. Langmaid, N.R. Lowe, D.V. Manning, R.M. Palmer, S.M. Palmer, M.S. Parsons, J.T. Radford, J. Robbins, A.N.B. Simpson, D.J. Slade, I.F. Smith, R.A. Softly, P.H. Sterling and M.R. Young.

Titles of journals are abbreviated as follows: *Ent. Gaz.* for the *Entomologist's Gazette*; *Ent. Rec.* for the *Entomologist's Record and Journal of Variation*; and *BJENH* for the *British Journal of Entomology and Natural History*.

In the following systematic list the nomenclature and order of species is according to the *Checklist of Lepidoptera recorded from the British Isles* (1998) by J.D. Bradley. This includes many recent taxonomic changes and, where a name may not be familiar, we have included the previously used name for clarity. The order of some species is also altered, but the "log book" numbers are also included, so that it should be possible to trace all species. New vice-county records are, as in previous Reviews, in **bold type** and <u>underlined</u>. The maps held by A.M. Emmet have been used to recognise these, and we are grateful to him for providing this information.

The departure of David Agassiz in August 1998 for a two-year appointment in Kenya has resulted in some problems with the collation of records. If any have, by mischance, been omitted, we apologise to the recorders concerned.

We would request that records for the 1998 Review are sent to John Langmaid as soon as possible, so that we may be able to have it published with less delay. It would be very helpful if records could be sent in the same format in which the Review is published, as this will considerably ease the tedious task of collation. Huge computerised lists, the bulk of which comprise records of very common species, are very difficult to process, and it would be appreciated if submissions could be confined to new vice-county or particularly interesting records only.

SYSTEMATIC LIST

MICROPTERIGIDAE

2 *Micropterix mansuetella* Zell. – Stainton Little Wood (**<u>63</u>**) 26.v.97 – HEB

ERIOCRANIIDAE

7 *Eriocrania chrysolepidella* Zell. – Grovely Wood (**<u>8</u>**) 31.v.97, vacated mine on *Corylus* – D. Green, *BJENH* **11**: 58; Yellowham Wood (9) 17.v.97, a few mines on *Corylus* – PHS & D. Hallet

8 *E. unimaculella* (Zett.) – Porlock (**<u>5</u>**) 25.iv.97, tenanted mines on *Betula* – JR

10 *E. salopiella* (Staint.) – Mildenhall (**<u>26</u>**) 21.v.97, a few tenanted mines on *Betula pubescens* – AME & JRL

11 *E. cicatricella* (Zett.) = *haworthi* Bradl.- Yardley Chase (**<u>32</u>**) 15.v.97 – DVM

12 *E. sangii* (Wood) – Longridge Fell (**<u>60</u>**) 17.v.97, a few tenanted mines on *Betula pendula* – SMP

NEPTICULIDAE

19 *Bohemannia quadrimaculella* (Boh.) – Plympton (**<u>3</u>**) 7.viii.97 – RJH

40 *B. pulverosella* (Staint.) – Flixton (**<u>59</u>**) 19.vi.97, vacated mine on *Malus* – SHH

20 *Ectoedemia decentella* (H. -S.) – Lightfoot Green (**<u>60</u>**) 9.vii.97 – SMP

22 *E. louisella* (Sirc.) – Hampstead (21) 25.viii.97 – RAS

23 *E. argyropeza* (Zell.) – Ballynafagh Bog (**<u>H19</u>**) 5.ix.97, mines – KGMB

37 *E. albifasciella* (Hein.) – Craigellachie, Banff (**<u>94</u>**) x.95 – MRY

38 *E. subbimaculella* (Haw.) – Glasdrum NNR (**<u>98</u>**) 4.xi.97 – MRY

39 *E. heringi* (Toll) – Glasdrum NNR (**<u>98</u>**) 4.xi.97 – MRY

46 *Trifurcula immundella* (Zell.) – Lairg (**<u>107</u>**) 29.vi.97 – JTR

53 *Stigmella splendidissimella* (H.-S.) – Ironbridge (**40**) 1.viii.97, several vacated mines on *Geum urbanum* and *Rubus idaeus* – JRL, A.G. Blunt and M.S. Smith

58 *S. ulmariae* (Wocke) – Ballynafagh Bog (**H19**) 5.ix.97, mines – KGMB

63 *S. lemniscella* (Zell.) = *marginicolella* (Staint.) – Duff House (**94**) 28.ix.97 – MRY & RMP

68 *S. salicis* (Staint.) – Whitewells, Ordiquhill (**94**) 28.ix.97 – MRY & RMP

70 *S. obliquella* (Hein.) – Curraghmore (**H17**) 20.ix.97, mines on *Salix pentandra* – KGMB

71 *S. zelleriella* (Snellen) – Lindisfarne (**68**) 5.vii.97, tenanted mines on *Salix repens* – RF

72 *S. myrtillella* (Staint.) – Montcoffer Woods (**94**) 28.ix.97 – MRY & RMP

73 *S. trimaculella* (Haw.) – Preston (**60**) 18.ix.97, vacated mine on *Populus* sp. – SMP

74 *S. assimilella* (Zell.) – Ironbridge (**40**) 9.viii.97, two vacated mines on *Populus tremula* – JRL, A.G. Blunt & M.S. Smith

75 *S. floslactella* (Haw.) – Forres (**95**) 3.x.97, mines – KGMB

77 *S. tityrella* (Staint.) – Montcoffer Woods (**94**) 28.ix.97 – MRY & RMP

79 *S. perpygmaeela* (Doubl.) – Montcoffer Woods (**94**) 28.ix.97 – MRY & RMP; Curraghmore (**H17**) 20.ix.97, mines; Ballynafagh Bog (**H19**) 5 ix.97, mines – KGMB

82 *S. paradoxa* (Frey) – Fisherlane Wood, Chiddingfold (**17**) 15.ix.97, a few vacated mines on *Crataegus monogyna* – AME & JRL

88 *S. samiatella* (Zell.) – Parkhurst Forest (**10**) 18.ix.97, a few vacated mines on *Castanea* – AME, JRL & SAK-J

94 *S. spinosissimae* (Waters) – Prestwick (**75**) 6.x.97, mines on *Rosa pimpinellifolia* – KGMB *per* KPB

100 *S. oxycanthella* (Staint.) – Montcoffer Woods (**94**) 28.ix.97; Duff House Woods (**94**) 28.ix.97 – MRY & RMP

102 *S. aceris* (Frey) – Tugley Wood, Chiddingfold (**17**) 13.x.97, a few vacated mines on *Acer campestre* – JRL, RMP, J.C. Koster & G.A. Collins

103 *S. nylandriella* (Tengst.) – Montcoffer Woods (**94**) 28.ix.97 – MRY & RMP; Ballynafagh Bog (**H19**) 5.ix.97, mines – KGMB

108 *S. crataegella* (Klim.) – Montcoffer Woods (**94**) 28.ix.97 – MRY

115 *S. alnetella* (Staint.) – Ballynafagh Bog (**H19**) 5.ix.97 – KGMB

OPOSTEGIDAE

121 *Pseudopostega crepusculella* (Zell.) – Paiton Wood, Loch Ken (**73**) 24.vi.97 – R. Mearns *per* KPB

INCURVARIIDAE

129 *Incurvaria pectinea* Haw. – Ardura, Isle of Mull (**103**) 29.vi.97, many vacated mines and cut-outs on *Betula pubescens* – JRL, MRY & RMP

142 *Nepatopogon pilella* ([D. & S]) – Bosley Cloud (**58**) 30.vi.97 – SHH

145 *Nemophora minimella* ([D. & S.]) – Dam Wood, Black Isle (106) vi.97 – S. Moran *per* MRY

149 *Adela cuprella* ([D. & S.]) – Nedd (**108**) v.97 – I. Evans *per* MRY

152 *A. rufimitrella* (Scop.) – Lairg (**107**) 26.vi.97 – JTR

HELIOZELIDAE

154 *Heliozela sericiella* (Haw.) – Lightfoot Green (**60**) 30.iv.97 – SMP

156 *H. resplendella* (Staint.) – Whitewells, Ordiquhill (**94**) 28.vi.97 – MRY & RMP; Ballynafagh Bog (**H19**) 5.ix.97, mines – KGMB

159 *Antispila treitschkiella* (F. v. R.) = *petryi* (Mart.)- Yardley Chase (**32**) 21.viii.97 – DVM

PSYCHIDAE

175 *Narycia monilifera* (Geoff.) – Gight Wood (**93**) 26.vi.97, a few cases on trunk of *Abies nobilis* – JRL, MRY & RMP

185 *Luffia ferchaultella* (Steph.) – Freckenham (**26**) 18.v.97, many cases on tree-trunks – AME & JRL

186 *Psyche casta* (Pallas) – Rabbit Warren, Dunnington (**61**) 12.vi.97 – MRB

TINEIDAE

199 *Psychoides verhuella* Bruand – Shrewsbury (**40**) 8.viii.97, many larvae on unidentified fern – JRL

203 *Infurcitinea argentimaculella* (Staint.) – Screen Hills (**H12**) 19.vii.97 – KGMB

212 *Haplotinea insectella* (Fab.) – Eaton Bray (**30**) viii.97 – DVM

217 *Nemapogon wolffiella*, K. & N. – Bred from *Hypoxylon multiforme*, and larva described – RJH, *Ent. Gaz.* **48**: 193-194; Havant Thicket (**11**) 5.v.97, many larvae and pupae in *Hypoxylon multiforme* on dead birch, moths bred – JRL & I.R. Thirlwell; Waresley Wood (31) 24.v.97, first record since VCH – BD & M. Sterling; Tyddesley Wood, near Pershore (37) 24.vi.97, two, first county record since 1875 – ANBS

220 *N. clematella* (Fabr.) – Waresley and Gransden Woods (**31**) 11.v.97 – BD

224 *Triaxomera parasitella* (Hübn.) – Plymouth Great Wood, Cardiff (**41**) 12.iv.96 – DJS

232 *Monopis monachella* (Hübn.) – Spurn (**61**) 14.viii.97 – B.R. Spence *per* HEB

238 *Niditinea striolella* (Matsummura) = *piercella* (Bentinck) – Porlock (5) 29.viii.96 – JR

BUCCULATRICIDAE

273 *Bucculatrix thoracella* (Thunb.) – Shrewsbury (**40**) 7.viii.97 – JRL

274 *B. ulmella* Zell. – Waun-y-Mynach (**42**) 15.vi.97 – NRL

GRACILLARIIDAE

280 *Caloptilia cuculipennella* (Hübn.) – Porlock (**5**) 1.ix.97, tenanted mines on *Fraxinus* – JR

282 *C. elongella* (Linn.) – Ballynafagh Bog (**H19**) 5 ix.97, mines – KGMB

284 *C. rufipennella* (Hübn.) – Horner (**5**) 3.viii.96, larval cones on *Acer pseudoplatanus* – JR; Prince's Wood, Poynton (**58**) 2.v.97 – SHH; Flixton (**59**) 19.vii.97 – IFS

294 *Aspilapteryx tringipennella* (Zell.) – Ballymacaw (**H6**) 18.vii.97, mines – KGMB

297 *Eucalybites auroguttella* (Steph.) – Newtown (**10**) 18.ix.97, several mines and spinnings on *Hypericum* sp. – AME & JRL

301 *Parornix betulae* (Staint.) – Ballynafagh (**H19**) 25.viii.97, mines – KGMB

303 *P. anglicella* (Staint.) – Duff House Woods (**94**) 28.ix.97 – MRY & RMP

305 *P. scoticella* (Staint.) – Porlock (**5**) 7.viii.97, mines and folds on *Sorbus torminalis*, moths bred – JR; Parkhurst Forest (**10**) 18.ix.97, a few vacated mines on *Sorbus aucuparia* – AME, JRL & SAK-J; Montcoffer Woods (**94**) 28.ix.97 – MRY & RMP

320 *Phyllonorycter quercifoliella* (Zell.) – Craigellachie, Banff (**94**) x.95 – MRY

321 *P. messaniella* (Zell.) – Forres (**95**) 3.x.97; Inverness (**96**) 5.x.97, mines on *Fagus* – KGMB

323 *P. oxyacanthae* (Frey) – Duff House Woods (**94**) 28.ix.97 – MRY & RMP; Curraghmore (**H17**) 20.ix.97, mines – KGMB; Ballynafagh Bog (**H19**) 5.ix.97, mines – KGMB

324 *P. sorbi* (Frey) – Ballynafagh Bog (**H19**) 5.ix.97 – KGMB

327 *P. cydoniella* ([D. & S.]) – Pingle Wood (**31**) 26.x.97 – BD

332a *P. leucographella* (Zell.) – St Neots (**31**) 6.ix.97 – BD

335 *P. salicicolella* (Sirc.) – Grange (**H17**) 20.ix.97; Ballynafagh Bog (**H19**) 5.ix.97, mines – KGMB

337 *P. hilarella* (Zett.) – Grange (**H17**) 20.ix.97, mines – KGMB

338 *P. cavella* (Zell.) – Flanders Moss (**86**) ix.92 – KGMB

343 *P. quinnata* (Geoff.) – Hinchingbrooke Country Park (**31**) 23.x.97 – BD & D. Evans

344 *P. strigulatella* (L. & Z.) – near Gavrick Copse (**3**) 31.vii.97, mines on *Alnus incana*, moths bred – RJH

345 *P. rajella* (Linn.) – Ballynafagh Bog (**H19**) 5.ix.97, mines (bred) – KGMB

349 *P. nigrescentella* (Logan) – Frome St. Quintin (**9**) 14.ix.97, many mines on *Vicia sepium* – PHS & D. Pearman; Kedrah (**H7**) 12.ix.97, mines on *Vicia sepium* – KGMB

353 *P. ulmifoliella* (Hübn.) – Whitewells, Ordiquhill (**94**) 28.ix.97 – MRY & RMP

354 *P. emberizaepenella* (Bouché) – Whitewells, Ordiquhill, Banff (**94**) 28.ix.97 – MRY & RMP

363 *P. platanoidella* (Joannis) – Heathfield (**14**) 24.x.97, mines – KGMB

CHOREUTIDAE

386 *Tebenna micalis* (Mann) – Ernesettle, Plymouth (3) 17.viii.97, larvae on *Pulicaria dysenterica*, moths bred; Wembury (3) 23.viii.97, larvae on same, moths bred; Marsh Mills, Plymouth (3) 30.viii.97, one adult on flower of *P. dysenterica* late afternoon – RJH

GLYPHIPTERIGIDAE

397 *Glyphipterix thrasonella* (Scop.) – Delamore Common (3) 10.v.97, pupae and dead larva in stems of *Juncus acutiflorus*, moth bred; larva not previously found in Britain or Europe – RJH

YPONOMEUTIDAE

401 *Argyresthia laevigatella* (Heyd.) – Longridge Fell (**60**) 6.vii.97 – SMP

404 *A. praecocella* Zell., Inchrory (**94**) 1993 – MRY

407a *A. cupressella* Wals. – South-east Suffolk (**27**) widespread, just reaching Harwich (**19**) 1.vii.97 – AME & DJLA – **New to Europe**, *Ent. Gaz.* **50**: 11-16.

409a *A. trifasciata* Staud. – Stockport (part) (**57**) 19.vi.97 – B.T. Shaw *per* IFS

410 *A. brockeella* (Hübn.) – Cranmore (**10**) 9.vii.97 – SAK-J; Lairg (**107**) 25.vi.97 – JTR

411 *A. goedartella* (Linn.) – Kildarroch (**74**) 5.viii.97 – SHH & IFS

413 *A. sorbiella* (Treits.) – Halse Combe, Porlock (**5**) – 11.vi.97 – JR

416 *A. glaucinella* Zell. – Loch a' Mhullin Wood, Scourie (**108**) 20.vi.96 – P. Entwistle *per* MRY

420 *A. pruniella* (Clerck) – Castramon Wood, Gatehouse of Fleet (**73**) 4.viii.97 – SHH & IFS

421 *A. bonnetella* (Linn.) – Hill Street, Inverness (**96**) 29.vii.84 – S. Moran *per* MRY; Salterstown (**H31**) 17 viii.97 – KGMB

422 *A. albistria* (Haw.) – Ravenshall Point (**73**) 3.viii.97 – SHH & IFS

424 *Yponomeuta evonymella* (Linn.) – Flixton (**59**) 4.vii-18.viii.97 – K. McCabe *per* SHH

425 *Y. padella* (Linn.) – Newton Stewart (**74**) 3.viii.97 – SHH & IFS

431 *Y. sedella* Treits. – Elmstead Market (19) 27.ix.97, breeding colonies on ornamental *Sedum* cultivars. First Essex breeding record for 100 years – BG

435 *Zelleria hepariella* Staint. – Flixton (**59**) 30.iii.97 – K. McCabe *per* SHH; Rossington (**63**) 19.viii.97 – RIH

441 *Paraswammerdamia lutarea* (Haw.) – Dundalk (**H31**) 5.vii.97 – KGMB

442 *Cedestis gysseleniella* (Zell.) – Porlock (**5**) 28.vi.97 – JR

444 *Ocnerostoma piniariella* Zell. – Porlock (**5**) 18.vi.97 – JR

449 *Prays fraxinella* (Bjerk.) – Loch Ness (**96**) vi.96 – KGMB

453 *Ypsolopha dentella* (Fabr.) – Chippermore Port (**74**) 7.viii.97 – SHH & IFS; Ardura, Isle of Mull (**103**) 29.vi.97 – JRL, MRY & RMP

455 *Y. scabrella* (Linn.) – Garvoge (**H19**) 25.viii.97 – KGMB

459 *Y. sylvella* (Linn.) – Rabbit Warren, Dunnington (**61**) 28.vii.97 – MRB

461 *Y. ustella* (Clerck) – Rogart (**107**) 24.ix.96 – P. Entwistle *per* MRY

462 *Y. sequella* (Clerck) – Leith, Edinburgh (**83**), 16.ix.97 – D. Robertson *per* KPB, *Ent. Rec.* **110**: 30

464 *Plutella xylostella* (Linn.) – Barncorkrie (**74**) 4.viii.97 – SHH & IFS

465 *P. porrectella* (Linn.) – Hilton (**31**) 3.v.97 – BD

475 *Acrolepiopsis marcidella* (Curt.) – Rempstone Heath (9) 11.vi.97, two; Harman's Cross (9) iv.97, one larval working in berry of *Ruscus aculeatus* – B. Edwards *per* PHS; life history determined – PHS & JRL., *Ent. Gaz.* **49**: 151-154; Wickham (11) 13.vi.97, about seven disturbed from *Ruscus* – JRL & RJH; Hayling Island (11), Gosport (11), Fareham (11) vii-ix.97 – JRL & I.R. Thirlwell; Tortington Common, Arundel (**13**) 12.vi.97 – RJH & JRL

476 *Acrolepia autumnitella* Curt. – Ironbridge (**40**) 9.viii.97, one – JRL, M.S. Smith & A.G. Blunt; Cardiff (**41**) 11.iii.97 – DJS

LYONETIIDAE

254 *Leucoptera laburnella* (Staint.) – Forres (**95**) 3.x.97, Resaurie (**96**) 5.x.97 – KGMB

256 *L. spartifoliella* (Hübn.) – Lairg (**107**) 29.vi.97 – JTR

263 *Lyonetia clerkella* (Linn.) – Duff House (**94**) 28.vi.97 – MRY & RMP; Inverness (**96**) vi. 96 – KGMB

264 *Bedellia somnulentella* (Zell.) – Templebreedy (**H4**) 11.viii.97, larva – KGMB

COLEOPHORIDAE

491 *Coleophora gryphipennella* (Hübn.) – Prestwick (**75**) 7.x.97, case – KGMB

494 *C. coracipennella* (Hübn.) – Gransden Wood, (**31**) 7.viii.97 – BD

495 *C. spinella* (Schrank) – Creehaun (**H9**) 14.vi.97, cases on *Crataegus*; Ferrybank (**H11**) 18.vii.97, mines on *Crataegus* – KGMB

497 *C. badiipennella* (Dup.) – Mildenhall (**26**) 21.v.97, a few cases on *Ulmus procera* – AME & JRL

504 *C. lusciniaepennella* (Treits.) = *viminetella* Zell. – Curraghmore (**H17**) 20.ix.97, mines on *Myrica* and *Salix*; Ballynafagh Bog (**H19**) 5.ix.97, cases on *Myrica* – KGMB

513 *C. potentillae* Elisha – Rushy Moor, Askern (**63**) ix.96, larval cases on *Filipendula ulmaria*, moths bred vi.97- HEB

515 *C. albitarsella* Zell. – Porlock (**5**) 5.vii.97 – JR

519 *C. deauratella* L. & Z. – Ballinamorragh (**H12**) 20.vii.97 – KGMB

520 *C. fuscicornis* Zell. – Tollesbury (19) 17.v.97, Third known UK site – BG

521 *C. conyzae* Zell. – Cockayne Hatley (**30**) vii.96, one in RIS trap – DVM

541 *C. pyrrhulipennella* Zell. – Poulsallagh (**H9**) 16.iv.97, case – KGMB

550 *C. silenella* H.-S. – Tidal Sidings (**41**) 24.vi.97, **New to Wales** – DJS

553 *C. striatipennella* Nyl. – Gait Barrows NNR (**60**) 28.vi.97, genitalia det. -SMP

554 *C. inulae* Hein. & Wocke – Rossington (**63**) 16.viii.95, genitalia det. – RIH

555 *C. follicularis* (Vallot) – Carsaig, Isle of Mull (**103**) 28.vi.97, a few moths and many cases on *Eupatorium* – JRL, MRY & RMP

557 *C. gardesanella* Toll. – near Kennford (**3**) 22.v.97, cases on *Achillea millefolium*, moths bred – RJH

559 *C. peribenanderi* Toll. – Gelli Rhyd Farm (**42**) 12.vii.97 – NRL; Ballinamorragh (**H12**) 20.vii.97 – KGMB

560 *C. paripennella* Zell. – Paxton Wood (**31**) 25.vii.97 – BD

561 *C. therinella* Tengst. – Westmancote, Bredon Hill (**37**) 8-10.vii.97, genitalia det. – ANBS; Rossington (63) 19.viii.97 – RIH

562 *C. asteris* Mühlig – Sharnbrook (**30**) 20.viii.97- DVM

563 *C. argentula* (Steph.) – Flixton (**59**) 19.x.97, larval cases on *Achillea* – K. McCabe *per* SHH; Spurn (**61**) vii & viii.97, genitalia det. – B.R. Spence *per* HEB

567 *C. adspersella* Ben. – Spurn (**61**) 4 & 7.vi.97, genitalia det. – B.R. Spence *per* HEB

568 *C. versurella* Zell. – Shrewsbury (**40**) 7.viii.97, genitalia det. – JRL; Glasson (**60**) 20.vi.97, genitalia det. – SMP; Spurn (**61**) 7 & 23.vii.97, genitalia det. – B.R. Spence *per* HEB

573 *C. atriplicis* Meyr. – Glasson (**60**) 20.vi.97, genitalia det. – SMP; Spurn (**61**) 5 & 6.vii.97, genitalia det. – B.R. Spence *per* HEB

574 *C. deviella* Zell. – Perranarworthal (**1**) 1.v.97, cases on *Suaeda maritima* 11.ix.96 and cases on tide-line debris, moths bred, genitalia det. – RJH

577 *C. artemisicolella* Bruand – Lower Earley (**22**) 16.ix.97, cases on *Artemisia vulgaris*; Burnham Beeches (**24**) 18.x.97, one case – I. Sims, *Ent. Rec.* **110**: 142

580 *C. sylvaticella* Wood – Gweek (**1**) 1.vi.97 – RJH

584 *C. alticolella* Zell. – Churchtown (**H12**) 8.ix.97, cases – KGMB

587 *C. caespititiella* Zell. Lightfoot Green (**60**) 15.vi.96, genitalia det. – SMP

527 *C. wockeella* Zell. – Petworth (13) 1.x.97, four cases on *Stachys officinalis* – JRL & JTR; Tugley Wood, Chiddingfold (17) 13.x.97, many cases on *S. officinalis* – JRL, RMP, J.C. Koster & G.A. Collins

ELACHISTIDAE

590 *Perittia obscurepunctella* (Staint.) – Micheldever (**12**) 7.iv.97, one – JRL & I.R. Thirlwell

599 *Elachista alpinella* Staint. – Sharnbrook (**30**) 18.vii.97; Cockayne Hatley (30) viii.97, one in RIS trap – DVM

601 *E. albifrontella* (Hübn.) – Lairg (**107**) 29.vi.97 – JTR

609 *E. maculicerusella* Bruand = *monosemiella* Rossl. – St Cyrus (**91**) 24.vi.97, one vacated mine on *Phalaris* – JRL

622 *E. adscitella* Staint. – Chicksands Wood (**30**) 14.vi.97 – C.R.B. Baker *per* DVM

623 *E. bisulcella* (Dup.) – Tobermory, Isle of Mull (**103**), 29.vi.97, mines on *Deschampsia cespitosa* em. 3.viii.97 – KPB

OECOPHORIDAE

634 *Schiffermuelleria grandis* (Desv.) – Upperton Wood (3) 18.v.97; near Canonteign Barton (3) 26.v.97 – RJH

640 *Batia lunaris* (Haw.) – Navigation Cop, Chester (**58**) 12.vii.97 – IFS; Bishop Wood, Selby (**64**) 23.vii.97 – A.S. Ezard *per* HEB

642 *B. unitella* (Hübn.) – Bishop Wood, Selby (**64**) 23.vii.97 – A.S. Ezard *per* HEB

646 *Telechrysis tripuncta* (Haw.) – St Ives (**31**) 6.vi.97 – BD

649 *Esperia sulphurella* (Fabr.) – Inverness Museum (**96**) 2.vii.85 – S. Moran *per* MRY

658 *Carcina quercana* (Fab.) – Hill Street, Inverness (**96**) viii.84 – S. Moran *per* MRY

659 *Amphisbatis incongruella* (Staint.) – Skipwith Common (**61**) 1.iv.95 – MRB

660 *Pseudatemelia josephinae* (Toll) – Uffmoore Wood, near Halesowen (**37**) 1.vii.97 – ANBS; Gait Barrows NNR (**60**) 28.vi.97 – SMP

665 *Dasystoma salicella* (Hübn.) – Badbury Rings (9) 9.vi.97 – P. Davey *per* PHS; Cogden (9) 17.iii.97; West Bexington (9) 4.iv.97 – R. Eden *per* PHS

668 *Luquetia lobella* ([D. & S.]) – Gt Staughton (31) 30.v.97, first record since VCH – BD

670 *Depressaria daucella* ([D. & S.]) – Lochaline, Morven (**97**) 27.vi.97, larvae on *Oenanthe crocata* – JRL, MRY & RMP

671 *D. ultimella* Staint. – Castle Ashby (**32**) 1.v.97 – G.E. Higgs *per* DVM

677 *D. douglasella* Staint. – Lolly Moor (**28**) 7.viii.97, one det. AME – K. Saul *per* DH

678 *D. sordidatella* Tengst. = *weirella* Staint. – Aberduna (**50**) 6.viii.96, **New to Wales –** IFS; Peterculter (92) 25.vi.97, a few larvae on *Heracleum*, moths bred – JRL, MRY & RMP

682 *D. chaerophylli* Zell. – Hazelcroft (**31**) 24.iv.97 – BD

698 *Agonopterix kaekeritziana* (Linn.) – Ravenshall Point (**73**) 4.viii.97 – IFS

701 *A. ocellana* (Fabr.) – Ballynafagh (**H19**) 25.viii.97 – KGMB

704 *A. scopariella* (Hein.) – West Melton (63) 27.iv.97, second Yorkshire record – HEB; Spinningdale, Dornoch (**107**) 5.x.96 – P. Entwistle *per* MRY

705 *A. umbellana* (Fabr.) = *ulicetella* (Staint.) – Ballinamorragh (**H12**) 20.vii.97 – KGMB

706 *A. nervosa* (Haw.) – Ravenshall Point (**73**) 4.viii.97 – SHH & IFS

708 *A. carduella* (Hübn.) – Carsaig, Isle of Mull (**103**) 28.vi.97, very many larvae on *Cirsium heterophyllum*, *C. vulgare* and *Centaurea nigra*, moths bred – JRL, MRY & RMP

711 *A. curvipunctosa* (Haw.) – Berrow (6) 19.vi.97, larvae on *Anthriscus caucalis* and a few on *A. sylvestris*, moths bred – DJLA & JRL

GELECHIIDAE

725 *Metzneria aestivella* (Zell.) – The Raven Point (**H12**) 19.vii.97 (det. O. Karsholt), Second confirmed Irish Record – KGMB

727 *M. neuropterella* (Zell.) – near Beachy Head (14) 31.viii.96, larvae in heads of *Cirsium acaule*, moths bred. Last recorded in 1985, last bred early 1950s – RJH & JRL

727a *M. aprilella* (H.-S.) – Badbury Rings (**9**) 9.vi.97 – P. Davey *per* PHS; Westmancote, Bredon Hill (**37**) 9.vi.97 & 17.vii.97 – ANBS

734 *Argolamprotes micella* ([D. & S.]) – Hardwick Wood, Plympton (3) 3 & 4.iv.97, larvae in shoots of *Rubus idaeus* and *R. fruticosus* agg., moths bred; Delamore Common (3) 5 & 28.iv.97, larvae in shoots of *Rubus fruticosus* agg., moths bred; Plympton (3) 7.iv.97, larvae in shoots of both *R. fruticosus* and *R. idaeus*, moths bred; Billacombe, Plymstock (3), larva in shoot of *R. fruticosus*, moth bred – RJH

728 *Monochroa cytisella* (Curt.) – Glenloughaun (**H15**) 9.vii.97 – KGMB

735 *M. tenebrella* (Hübn.) – Malham (**64**) vi.97 – MRY; Carsaig, Isle of Mull (**103**) 28.vi.97, two – JRL, MRY & RMP; Lairg (**107**) 29.vi.97 – JTR

737 *M. palustrella* (Dougl.) – Cranmore (**10**) 10.vii.97 – SAK-J

740 *M. hornigi* (Staud.) – Saffron Walden (**19**) – 5.vi.97 – AME; Rossington (**63**) 29.vii & 21.viii.95, det. JRL – RIH

742 *M. lutulentella* (Zell.) – Black Meadow, Chaddesley Woods NNR (**37**) 1.vi.97, one floating in water trough – ANBS

747 *Chrysoesthia sexguttella* (Thunb.) – Tramore (H6) 17.vii.97, mines on *Atriplex*; Kedrah (**H7**) 12.ix.97, mines on *Chenopodium album* – KGMB

748 *Ptocheuusa paupella* (Zell.) – Selworthy (**5**) 8.viii.97, larvae numerous on *Pulicaria*, moths bred – JR

755 *Stenolechia gemmella* (Linn.) – Lightfoot Green (**60**) 13.viii.97 – SMP

760 *Exoteleia dodecella* (Linn.) – Gait Barrows NNR (**60**) 28.vi.97 – SMP

778 *Bryotropha umbrosella* (Zell.) – Findhorn Dunes (**95**) 18.vi.83 – S. Moran *per* MRY; Trawleckahoolia (**H27**) 1.vi.97 – KGMB

782 *B. senectella* (Zell.) – Tramore Burrow (**H6**) 18.vii.97 – KGMB

789 *B. domestica* (Haw.) – Newton Stewart (**74**) 3.viii.97 – SHH & IFS

761 *Athrips tetrapunctella* (Thunb.) – Tulloch Moor (96) 22.vi.97 – RJH

762 *A. mouffetella* (Linn.) – Llangorse (**42**) 26.vii.97 – NRL

774 *Teleiodes luculella* (Hübn.) – Porlock (**5**) 7.vii.97 – JR

775 *T. sequax* (Haw.)- Inchrory (**94**) 1993 – MRY

790 *Chionodes fumatella* (Dougl.) – Porlock (**5**) 7.viii.97 – JR; Lytham St. Annes (**60**) 22.vii.97 – SMP; The Raven Point (**H12**) 19.vii.97, second Irish locality – KGMB

796 *Aroga velocella* (Zell.) – Cooper's Hill (**30**) 11.vii.97 – DVM

801a *Gelechia senticetella* (Staud.) – Eaton Bray (**30**) 1997 – DVM

802a *G. sororculella* (Hübn.) – Lytham St. Annes (**60**) 22.vii.97 – SMP

811 *Scrobipalpa samadensis* (Pfaff.) – Ballymacaw (**H6**) 18.vii.97 – KGMB

819 *S. costella* (H. & W.) – Cork City (**H4**) 26.ix.97 – KGMB

820 *S. artemisiella* (Treits.) – Inchrory (**94**) 1993 and 1997 – MRY

822 *S. acuminatella* (Sirc.) – Tiroran, Isle of Mull (**103**) 28.vi.97, tenanted mines in *Cirsium vulgare* – JRL, MRY & RMP

830 *Caryocolum fraternella* (Dougl.) – St Ives (**31**) 3.viii.97 – BD

845 *Syncopacma sangiella* (Staint.) – Newtonmore (**96**) 21.vi.97, larvae on *Lotus corniculatus*, moth bred – RJH

847 *S. taeniolella* (Zell.) – Studham (**30**) 3.vii.97 – DVM

856 *Anarsia spartiella* (Schrank) – Ballinamorragh (**H12**) 20.vii.97 – KGMB

857 *A. lineatella* Zell. – Cardiff (**41**) 16.viii.97, **New to Wales** – DJS

858 *Hypatima rhomboidella* (Linn.) – Kirkinner (**74**) 8.viii.97 – SHH & IFS

862 *Dichomeris marginella* (Fabr.) – Minehead (**5**) 9.viii.97 – JR; Heald Green (**58**) 3.vi.94 & 18.vi – 21.viii.97 – B.T. Shaw, det. HEB *per* SHH

851 *Acanthophila alacella* (Zell.) – Trigon (**9**) 19.viii.96 – C. Manley *per* PHS

868 *Helcystogramma rufescens* (Haw.) – Ravenshall Point (**73**) 4.viii.97 – SHH & IFS; Kilbarry Bog (**H6**) 17.vii.97; Ballymacaw (H6) 18.vii.97; Newtown Cove (H6) 19.vii.97 – KGMB

749 *Sitotroga cerealella* (Olivier) – Norwich (27) 21.v.97, one in Castle Museum – A.G. Irwin *per* DH

BLASTOBASIDAE

873 *Blastobasis lignea* Wals. – Ravenshall Point (**73**) 4.viii.97; Newton Stewart (**74**) 3.viii.97- SHH & IFS; Hill Street, Inverness (**96**) 2.viii.84 – S. Moran *per* MRY

874 *B. decolorella* (Woll.) – Heald Green (**58**) 23.vi.97 – B.T. Shaw *per* SHH; South Barrule (**71**) 20.xii.97, (D. Allen, det. O. Karsholt) – KGMB

MOMPHIDAE

880 *Mompha langiella* (Hübn.) – Methven Wood (**88**), 8.vi.97, mine in *Epilobium obscurum* em. 3.viii.97 – KPB, **New to Scotland**

885 *M. conturbatella* (Hübn.) – Freckenham (**26**) 18V.97, one larva on *Chamerion* – AME & JRL; Seafield (**96**) 21.vii.97 – S. Moran *per* MRY

889a *M. bradleyi* Riedl – Bransford (**37**) 19.viii.89, two 10.iv.91; 2.ii.97, and specimens dating from 1874 in Worcester Museum – ANBS

COSMOPTERIGIDAE

896a *Cosmopterix scribaiella* Zell. – Gosport (**11**) 22.ix.97, tenanted mines in *Phragmites* – JRL, D. Walker & I.R. Thirlwell; Portsmouth (11) ix-x.97, at four localities within city boundary, tenanted mines in *Phragmites* – JRL & I.R.Thirlwell

900 *Pancalia schwarzella* (Fabr.) = *latreillella* Curt.- Inchrory (**94**) 1979 – MRY

907 *Dystebenna stephensi* (Staint.) – Edwinstow (**56**) 24.vii.97, female genitalia det. – KGMB

910 *Sorhagenia janiszewskae* Riedl – Deerpark Wood (**2**) 13.v.97, larvae in shoots of *Frangula* – RJH

SCYTHRIDIDAE

916 *Scythris siccella* (Zell.) – Ferrybridge (9) 29.iv.97, larvae on *Armeria maritima* – PHS; 15.v.97, on other plants – PHS & JRL; PHS, *Ent. Gaz.* **49**: 138-139

917 *S. empetrella* K. & N. – Findhorn (**95**) vi.83 – S. Moran *per* MRY **New to Scotland** *Ent. Rec.* **110**: 93

TORTRICIDAE

921 *Phtheochroa inopiana* (Haw.) – Little Comberton, near Pershore (**37**) 1997, det. ANBS – D. Green; Ballinamorragh (**H12**) 20.vii.97 – KGMB

937 *Agapeta hamana* (Linn.) – Wood of Cree (**73**) 2.viii.97 – SHH & IFS

938 *A. zoegana* (Linn.) – Abbey Burn Foot (**73**) 8.viii.97 – SHH & IFS

945 *Aethes cnicana* (Westw.) Loch Don, Isle of Mull (**103**) 29.vi.97 – JRL, MRY & RMP; Lairg (**107**) 29.vi.97 – JTR

950 *A. francillana* (Fabr.) – Loughshinny (**H12**) 6.vii.97, third Irish locality – KGMB

951 *A. beatricella* (Wals.) – Flixton (**59**) 23.vi.97 – K. McCabe *per* SHH

955 *Eupoecilia ambiguella* (Hübn.) – Freshwater (**10**) 17.viii.97 – SAK-J

956 *Cochylidia implicitana* (Wocke) – Kilstay Bay (**74**) 5.viii.97 – SHH & IFS

960 *Falseuncaria ruficiliana* (Haw.) – Flixton (**59**) 27.vii – 19.viii.97 – K. McCabe *per* SHH

966 *Cochylis atricapitana* (Steph.) – Shrewsbury (**40**) 7.viii.97 – JRL

985 *Cacoecimorpha pronubana* (Hübn.) – Bridlington (**61**) 27.viii.97 – A.S. Ezard *per* HEB

998 *Epiphyas postvittana* (Walk.) – Lodge Hill Farm, Wyre Forest NNR (**37**) 24.viii.97 – ANBS; Rosslare Harbour (**H12**) 8.ix.97, **New to Ireland** – KGMB, *Ent. Rec.* **110**: 250

999 *Adoxophyes orana* (F. v. R.) – Spurn (**61**) 19.viii.97, B.R. Spence *per* HEB

1001 *Lozotaeniodes formosanus* (Gey.) – Flixton (**59**) 30.vi – 13.vii.97 – K. McCabe *per* SHH; Cawood, Selby (**64**) – 23.vii.97 – J. Payne *per* HEB

1011 *Pseudargyrotoza conwagana* (Fabr.) – Golspie (**107**) 24.vii.76 – A. Joyce *per* MRY

1015 *Eulia ministrana* (Linn.) – Nedd (**108**) vii.96 – I. Evans *per* MRY

1020 *Cnephasia stephensiana* (Doubl.) – Ballinamorragh (**H12**) 20.vii.97 – KGMB

1021 *C. asseclana* ([D. & S.]) – Rosemarkie, Black Isle (**106**) 31.viii.96 – P. Entwistle *per* MRY

1023 *C. genitalana* P. & M. – Holton Heath Marsh (**9**) 6.viii.97; Chase Woods (9) 7.viii.97 – P. Davey *per* PHS

1031 *Eana penziana* ssp. *colquhounana* (Barr.)- Adam's Chair (**73**) 9.viii.97 – SHH & IFS

1033 *Tortrix viridana* Linn. – Seafield, Inverness (**96**) 21.vii.85 – S. Moran *per* MRY

1040 *Acleris caledoniana* (Steph.) – Cragencalle, Clatteringshaws Loch (**73**) 6.viii.97 – SHH & IFS

1041 *A. sparsana* ([D. & S.]) – Caledonian Canal, Loch Ness (**96**) 22.vi.86 – S. Moran *per* MRY

1042 *A. rhombana* ([D. & S.]) – Spinningdale, Dornoch (**107**) 5.x.96 – P. Entwistle *per* MRY

1043 *A. aspersana* (Hübn.) – Newtown Cove (**H6**) 19.vii.97 – KGMB

1051 *A. logiana* (Clerck) – Binstead (**10**) 4.xi.97 – B.J. Warne *per* SAK-J, *Ent. Rec.* **110**: 144

1062 *A. emargana* (Fabr.) – Ballynafagh (**H19**) 25.viii.97 – KGMB

1014 *Isotrias rectifasciana* (Haw.) – Hampstead (21) 2.vi.97 – RAS

1068 *Celypha rivulana* (Scop.) – Glenloughaun (**H15**) 9.vii.97 – KGMB

1075 *Olethreutes olivana* (Treits.) – Malham (**64**) vi.97 – MRY

1085 *Metendothenia atropunctana* (Zett.) – Curraghmore (**H17**) 20.ix.97, larvae on *Myrica* – KGMB

1087 *Orthotaenia undulana* ([D. & S.]) – Flixton (**59**) 24.vi.97 – K. McCabe *per* SHH; Lairg (**107**) 25.vi.97 – JTR

1092 *Apotomis turbidana* (Hübn.) – Ledmore Wood, Spinningdale, Dornoch (**107**) 18.vii.96 – P. Entwistle *per* MRY

1093 *A. betuletana* (Haw.) – The Forest, Kirkinner (**74**) 7.viii.97 – SHH & IFS

1094 *A. capreana* (Hübn.) – Mullaghmore (**H9**) 13.vi.97 – KGMB

1108 *Lobesia abscisana* (Doubl.) – Flixton (**59**) 12.viii.97 – K. McCabe *per* SHH; Lytham St. Annes (**60**) 22.vii.97 – SMP

1109 *L. littoralis* (H. & W.) – Chippermore Port (**74**) 7.viii.97 – SHH & IFS

1111a *Bactra lacteana* Caradja – Trowlesworthy Warren (3) 19.vii.97 – RJH; Walberton (**13**) 7.viii.94; 3.viii.97, genitalia det. JRL – JTR; Sanna Bay (**97**) 27.vi.95, genitalia det.- MSP, **New to Scotland**

1115 *Ancylis achatana* ([D. & S.]) – Flixton (**59**) 12 & 14.vii.97 – K. McCabe *per* SHH

1117 *A. unguicella* (Linn.) – Malham (**64**) vi. 97 – MRY

1121 *A. upupana* (Treits.) – Skipworth Common (**61**) 28.v.97 – MRB

1130 *Epinotia pygmaeana* (Hübn.) – Longridge Fell (**60**) 16.iv.97 – SMP

1134 *E. ramella* (Linn.) – Wood of Cree (**73**) 3.viii.97 – SHH & IFS

1136 *E. immundana* (F. v. R.) – Kilbarry Bog (**H6**) 17.vii.97 – KGMB

1141 *E. nemorivaga* (Tengst.) – An Loch Dubh (**H16**) 21.ix.97, vacated mines on *Arctostaphylos* – KGMB

1158 *Rhopobota ustomaculana* (Curt.) – Glen Leitire, Beinn Eighe (**105**) 3.viii.86 – S. Moran *per* MRY

1162 *R. myrtillana* (H. & W.) – Halse Combe, Porlock (**5**) 4.vi.96 – JR

1165 *Zeiraphera isertana* (Fabr.) – Ravenshall Point (**73**) 4.viii.97 – SHH & IFS; Hill Street, Inverness (**96**) 15.ix.84 – S. Moran *per* MRY

1174 *Epiblema cynosbatella* (Linn.) – Nedd (**108**) vii.96 – I. Evans *per* MRY

1178 *E. roborana* ([D.& S.]) – Ravenshall Point (**73**) 4.viii.97 – SHH & IFS

1186 *E. sticticana* (Fabr.) – Inchrory (**94**) 1980 and 1981 – MRY

1192 *Eucosma conterminana* (Guen.) – Spurn (**61**) 12 & 27.vii.97, genitalia det. – B.R. Spence *per* HEB

1197 *E. campoliliana* ([D. & S.]) – Ballinamorragh (**H12**) 19.vii.97 – KGMB
1198 *E. pauperana* (Dup.) – Hilton (**31**) 3.v.97 – BD
1201 *E. cana* (Haw.) – Lairg (**107**) 29.vi.97 – JTR; Dundalk (**H31**) 5.vii.97 – KGMB
1205 *Spilonota ocellana* ([D. & S.]) – Ravenshall Point (**73**) 4.viii.97 – SHH & IFS; Ballinamorragh (**H12**) 20.vii.97 – KGMB
1205a *S. laricana* (Hein.) – Ballinamorragh (**H12**) 20.vii.97 – KGMB
1213 *Rhyacionia logaea* Durr. – Blackwood, Rannoch (**88**) 7-9.iv.97 – JTR
1214 *Retinia resinella* (Linn.) – Whitewells, Ordiquhill (**94**) 28.ix.97 – MRY & RMP
1219 *Lathronympha strigana* (Fabr.) – Flixton (**59**) 11.vii.97 – K. McCabe *per* SHH
1222 *Strophedra nitidana* (Fabr.) – Jones's Covert (**31**) 1997 – BD
1223 *Pammene splendidulana* (Guen.) – Ledmore Wood, Spinningdale, Dornoch (**107**) 12.vi.96 – P. Entwistle *per* MRY
1225 *P. obscurana* (Steph.) – Allt House Wood (**42**) 1.v.97, one bred from birch stump – NRL
1229 *P. albuginana* (Guen.) – Grafham Water (**31**) 3.v.97 – BD
1234 *P. regiana* (Zell.) – Duff House Woods (**94**) 28.ix.97 – MRY & RMP
1272 *P. aurana* (Fab.) – Ravenshall Point (**73**) vi.91 – IFS
1241 *Cydia compositella* (Fabr.) – Carlingford (**H31**) 5.vii.97 – KGMB
1243 *C. pallifrontana* (L. & Z.) – Souldrop (**30**) 3.vi.97 – DVM
1247 *C. funebrana* (Treits.) – Ballinamorragh (**H12**) 20.vii.97 – KGMB
1252 *C. lunulana* ([D. & S.]) – Navigation Cop, Chester (**58**) 17.v.97 – IFS
1260 *C. splendana* (Hübn.) – Ravenshall Point (**73**) 4.viii.97 – SHH & IFS
1273 *Dichrorampha petiverella* (Linn.) – Ravenshall Point (**73**) 4.viii.97 – SHH & IFS
1274 *D. alpinana* (Treits.) – Flixton (**59**) 18.vii.97 – K. McCabe *per* SHH
1279 *D. acuminatana* (L. & Z.) – Castlegrange (**H20**) 7.ix.97, male genitalia det. – KGMB
1280 *D. consortana* Steph. – Pepper Wood, near Bromsgrove (**37**) 29.vi.97 – ANBS

EPERMENIIDAE

477 *Phaulernis dentella* (Zell.) – Horner Wood, Porlock (**5**) 28.vi.96 – JR

ALUCITIDAE

1288 *Alucita hexadactyla* (Linn.) – Bishop's Cleeve, Cheltenham (**33**) 1997 – J.S. Brock *per* AMD

PYRALIDAE

1289 *Euchromius ocellea* (Haw.) – Christchurch (11) 8.iii.97 – M. Jeffes *per* PHS
1290 *Chilo phragmitella* (Hübn.) – Steeple Ashton (**8**) 13.viii.97- E.G. & M.H. Smith *per* AMD
1292 *Calamotropha paludella* (Hübn.) – Steeple Ashton (**8**) 13.viii.97 – E.G. & M.H. Smith *per* AMD
1294 *Crambus pascuella* (Linn.) – Trowlesworthy Warren (3) 2.iv.97, larvae in silken tubes amongst *Festuca ovina* agg. 2.iv.97, moths bred – larva not previously found in Europe – RJH
1305 *Agriphila tristella* ([D. & S.]) – Abbeyleix (**H14**) 13.viii.97 – KGMB
1306 *A. inquinatella* ([D. & S.]) – Carsaig, Isle of Mull (**103**) 28.vi.97 – MRY
1307 *A. latistria* (Haw.) – Washingborough Hall (**53**) 13.viii.97 – Mrs A. Binding *per* AMD
1309 *A. geniculea* (Haw.) – Cork City (**H4**) 20.viii.97; Annagassan (**H31**) 17.viii.97 – KGMB
1321 *Thisanotia chrysonuchella* (Scop.) – Spurn (**61**) 7.vi.97 – B.R. Spence *per* HEB

1325 *Platytes alpinella* (Hübn.) – Porlock (**5**) 6.viii.96 – JR; Kirkby Underwood (**53**) 29.vii.97 – J. Lamin *per* AMD; Baston Fen (53) 9.viii.97 – J. Lamin *per* AMD; Rossington (**63**) 2-8.viii.97 – RIH

1326 *P. cerussella* ([D. & S.]) – Laughton Wood (**54**) 2.viii.97 – R. Johnson *per* AMD; Spurn NNR (**61**) 9.vi.97 – B.R. Spence *per* HEB

1327 *Ancylolomia tentaculella* (Hübn.) – Bradwell-on-Sea (**18**) 12.viii.97 – S.F.J. Dewick *per* AMD

1330 *Donacaula mucronellus* ([D.& S]) – Holkham NNR (**28**) 1997 – M. Tunmore *per* AMD

1333 *Scoparia pyralella* ([D. & S.]) – Ballymacaw (**H6**) 18.vii.97 – KGMB

1334a *S. basistrigalis* Knaggs – Cheltenham (**33**) 1997 – J.S. Brock *per* AMD; Boultham Mere (**53**) 22.vii.97 – P. Porter *per* AMD

1338 *Dipleurina lacustrata* (Panz.) – Wood of Cree (**73**) 2.viii.97 – AMD; Newton Stewart (**74**) 6.viii.97 – SHH & IFS; Carsaig, Isle of Mull (**103**) 28.vi.97 – MRY

1339 *Eudonia murana* (Curt.) – Messingham (**54**) 23.vii.97 – R. Johnson *per* AMD

1340 *E. truncicolella* (Staint.) – Wood of Cree (**73**) 3.viii.97 – SHH & IFS; Newton Stewart (**74**) 3.viii.97 – SHH & IFS

1341 *E. lineola* (Curt.) – Beaumaris (**52**) 22.viii.97 – J.H. Clarke *per* AMD

1343 *E. delunella* (Staint.) – Bramble Wood, Nr Holsworthy (**4**) 21.vii.97 – R.F. McCormick *per* AMD

1344 *E. mercurella* (Linn.) – Bailey Einon NR (**43**) 17.vii.97 – AMD; Baston Fen (**53**) 5.vii.97 – J. Lamin *per* AMD; Keld (**65**) 3.viii.97 – SMP

1331 *Acentria ephemerella* ([D. & S.]) – The Forest, Kirkinner (**74**) 8.viii.97 – SHH & IFS

1345 *Elophila nymphaeata* (Linn.) – Bramble Wood, Nr Holsworthy (**4**) 13.vi.97 – R.F. McCormick *per* AMD; Mount Desert (**H4**) 8.vii.97; Lough Acalla (**H15**) 9.vii.97 – KGMB

1350 *Nymphula stagnata* (Don.) – Kilbarry Bog (**H6**) 17.vii.97 – KGMB

1354 *Cataclysta lemnata* (Linn.) – Burnham Norton (**28**) 2.viii.97 – M. Tunmore *per* AMD

1356 *Evergestis forficalis* (Linn.) – Hakeford (**4**) 21.vi.97 – P. Butter *per* AMD

1356a *E. limbata* (Linn.) – Swanage (**9**) 22.vii.97 – R. Cox *per* PHS

1359 *Cynaeda dentalis* ([D. & S.]) – Steeple Ashton (**8**) 8.vii.97 – E.G. & M.H. Smith *per* AMD

1359b *Eustixia pupula* Hübn. – Southampton (**11**) 21.vii.97 – P.A. Budd – **New to Britain**, *Ent. Gaz.* **49**: 169-170.

1361 *Pyrausta aurata* (Scop.) – Hawarden (**51**) 1997 – G. Neal *per* AMD

1362 *P. purpuralis* (Linn.) – Bramble Wood, Nr Holsworthy (**4**) 21.vii.97 – R.F. McCormick *per* AMD; Glenlonghaun (**H15**) 9.vii.97 – KGMB

1363 *P. ostrinalis* (Hübn.) – Glas Maol (**90**) 25.vi.97 – MRY

1365 *P. despicata* (Scop.) = *cespitalis* ([D. & S.]) – Baston Fen (**53**) 9.viii.97 – J. Lamin *per* AMD; Metal Man Tower (**H6**) 19.vii.97; Newton Cove (**H8**) 19.vii.97 – KGMB

1366 *P. nigrata* (Scop.) – Church Cove, Lizard (**1**) 1997 – M. Tunmore *per* AMD

1368 *Loxostege sticticalis* (Linn.) – West Bexington (9) 13.viii.97 – R. Eden *per* PHS; Woolland (9) viii.97 – P. Benham *per* PHS; Rodborough Common (**34**) 10.viii.97 – D. Gibbs *per* AMD

1370 *Sitochroa palealis* ([D. & S.]) – Slapton (3) 4.vii.97, at rest on grass stem – RJH & B.P. Henwood; Yarwell Quarry (**32**) 3.viii.97 – P.D. Sharpe *per* DVM

1375 *Ostrinia nubilalis* (Hübn.) – Bridgwater (6) 12.x.97, several larvae in stems of *Artemisia vulgaris* – RJH

1380 *Phlyctaenia perlucidalis* (Hübn.) – Bishopstone (**7**) 1.vi.97 – SMP; Lodmoor, Weymouth (9) 19.vii.97 – D. Gibbs *per* AMD; 19.vii.97 – M. Parker & P. & D. Sharpe *per* PHS

1384 *P. stachydalis* (Germ.) – Birdlip Farm, Tregroes, near Llandysul (46) 11.vii.97 – ANBS

1385 *Ebulea crocealis* (Hübn.) – Ballymacaw (**H6**) 18.vii.97; Ballinamorragh (**H12**) 20.vii.97 – KGMB

1386 *Opsibotys fuscalis* ([D. & S.]) – The Bush (**H31**) 5.vii.97 – KGMB

1388 *Udea lutealis* (Hübn.) – Ballinamorragh (**H12**) 19.vii.97; Lough Acalla (**H15**) 9.vii.97; Ballynafagh Bog (**H19**) 25.viii.97 – KGMB

1390 *U. prunalis* ([D. & S.]) – Wood of Cree (**73**) 3.viii.97; Newton Stewart (**74**) 3.viii.97 – SHH & IFS

1392 *U. olivalis* ([D. & S.]) – Ballinamorragh (**H12**) 19.vii.97; Dundalk (**H31**) 5.vii.97 – KGMB

1396 *Mecyna flavalis* ([D. & S.]) – Streatley (**22**) 4.viii.96 – MCH

1403 *Diasemiopsis ramburialis* (Dup.) – Plympton (3) 7.viii.97 – RJH

1403a *Duponchelia fovealis* Zell. – Kirby-le-Soken (**19**) ix.97, second UK record – P. Bergdahl *per* BG

1408 *Palpita unionalis* (Hübn.) – Hampstead (21) 25.ix.97 – RAS

1424 *Endotricha flammealis* ([D. & S]) – Coddington Wood (**53**) 24.vii.97 – KGMB; Rossington (**63**) 8-12.viii.97, two – RIH

1425 *Galleria mellonella* (Linn.) – Spalding (**53**) 6.viii.97 – Mrs A. Faulkner *per* AMD

1426 *Achroia grisella* (Fabr.) – Datchworth (**20**) 29.vii.97 – SMP

1428 *Aphomia sociella* (Linn.) – Newton Stewart (**74**) 3.viii.97 – SHH & IFS

1433 *Cryptoblabes bistriga* (Haw.) – Gelli Rhyd Farm (**42**) 12.vii.97 – NRL *per* AMD; Dhoon, Maughold (**71**) 16.vii.97 – L. Kneale det. G.D. Craine *per* AMD; nr Gairloch (**105**) 26. ix. 97 – P. Entwistle *per* MRY

1434 *C. gnidiella* (Mill.) – Coulsdon (**17**) 1997 – P.M. Stirling *per* AMD

1436 *Conobathra repandana* (Fabr.) – Grange-over-Sands (**69**) 19.vii.97 – SMP

1438 *Trachycera suavella* (Zinck.) – Gibraltar Point NNR (**54**) 11.viii.97 – K.M.S. Wilson *per* AMD

1439 *T. advenella* (Zinck.) – The Forest, Kirkinner (**74**) 8.viii.97 – SHH & IFS

1443 *Pempelia genistella* (Dup.) – Thursley Common (**17**) 13.vii.96, very many larvae on *Ulex europeus* – JRL

1454 *Dioryctria abietella* ([D. & S.]) – Gusset Wood (part) (**23**) 6.vii.97; Gusset Wood (part), Stonar (**24**) 6.vii.97 – J.H. Clarke *per* AMD; Llangorse (**42**) 24.vii.97 – NRL *per* AMD; Callans Lane Wood, Kirkby Underwood (53) 29.vi.97 – J. Lamin *per* AMD

1455 *D. simplicella* Hein. = *mutatella* Fuchs – Speech House, Forest of Dean (**34**) 2.viii.97 – D. Gibbs *per* AMD; Westmancote, Bredon Hill (**37**) 13.vii.97 – ANBS; Cors Bodgyndd NR (**49**) 10.viii.97 – AMD; Flixton (59) 12.vii.97 – K. McCabe *per* AMD; Tophill Low NR (**61**) 16.vii.97 – P.A. Crowther det. HEB *per* AMD

1486 *Apomyelois bistriatella* (Hulst.) – Skipwith Common, Yorks. (**61**) 3.ix.96 – HEB; Ballynafagh Bog (**H19**) 5.ix.97, **New to Ireland** – KGMB, *Ent. Gaz.* **49**: 139

1462 *Pempeliella dilutella* ([D.& S.]) = *diluta* (Haw.) – Eaton Bray (**30**) 96, one in RIS trap – DVM; Ravenshall Point (**73**) 4.viii.97 – SHH & IFS; The Raven Point (**H12**) 19.vii.97 – KGMB

1465 *Nephopterix angustella* (Hübn.) – Plympton (3) 21.viii.97 – RJH; Ditchingham (27) 16.viii.97, one det. AME – K. Saul *per* DH

1467 *Ancylosis oblitella* (Zell.) – Grafham Water (**31**) 23.viii.97- BD

1474 *Ephestia parasitella* Staud. – Datchworth (**20**) 27-29.vii.97 – SMP *per* AMD; Kingsthorpe (**32**) 16.vi.97 – P.D.Sharpe *per* DVM; Gelli Rhyd Farm (**42**) 12.vii.97 – NRL *per* AMD

1476 *E. cautella* (Walk.) – Dublin City (**H21**) viii.97, larvae feeding on nuts in chocolate factory – KGMB

1478a *Vitula edmandsii* (Pack.) – Spurn (**61**) 8.viii.97, gen. det., **New to Britain** – B. R. Spence *per* HEB, *Ent. Gaz.* **49**: 233-236

1480 *Homoeosoma nebulella* ([D. & S.]) – Upper Basildon (22) 16.viii.96 – MCH

1481 *H. sinuella* (Fabr.) – Hawarden (**51**) 18.vi.97 – G. Neal *per* AMD

1482 *H. nimbella* (Dup.) – St Mary's, Isles of Scilly (1) 26.vii.96, larvae in seed-heads of *Jasione montana*, moths bred. Larva not previously found in Britain – RJH

1484 *Phycitodes saxicola* (Vaugh.) – Ballymacaw (**H6**) 18.vii.97; Waterford (H6) 19.vii.97 – KGMB

PTEROPHORIDAE

1488 *Agdistis bennetii* (Curt.) – Hampstead (21) 6.viii.97 – RAS

1491 *Oxyptilus distans* (Zell.) – Portsmouth (**11**) 8.viii.97, genitalia det. JRL – I.R. Thirlwell *per* JRL

1495 *Marasmarcha lunaedactyla* (Haw.) – Tramore Burrow (**H6**) 18.vii.97, **New to Ireland**; The Raven Point (**H12**) 19.vii.97 – KGMB

1498 *Amblyptilia punctidactyla* (Haw.) – Forres (**95**) 30.ix.97 – KGMB

1503 *Platyptilia ochrodactyla* ([D. & S.]) – Kingsthorpe (**32**) 20.vi.97 – P.D. Sharpe *per* DVM; Flixton (**59**) 22.vii – 25.ix.97 – K. McCabe *per* SHH

1505 *Stenoptilia pneumonanthes* (Butt.) – Dorset heaths (9) 16.ix.97, larvae in flowers of *Gentiana pneumonanthe* – PHS & RJH, *Ent. Gaz.* **49**: 229-230

1510 *Merrifieldia leucodactyla* ([D. & S.]) = *tridactyla* auctt. – Adam's Chair (**73**) 8.viii.97 – SHH & IFS

1517 *Adaina microdactyla* (Hübn.) – Courtaparteen (**H3**) 17.vi.97, galls; Newton Cove (**H6**) 19.vii.97, exuviae; Greenore (**H31**) 5.vii.97, galls – KGMB

1522 *Euleioptilus tephradactyla* (Hübn.) – Gait Barrows NNR (**60**) 28.vi.97 – SMP

The Marsh Award

Readers will, I am sure, wish to join the Editor and his colleagues, together with the staff at Cravitz Printing Company Limited, in offering hearty congratulations to Lt. Col. Maitland Emmet for being the first recipient of the Marsh Award. This honour, co-sponsored by Butterfly Conservation and the Marsh Christian Trust, has been awarded to Maitland for a lifetime of achievement in Lepidoptera conservation. An honour well deserved, sir!

National Moth Night – 17 July 1999

The first National Moth Night is being run on 17 July 1999 and it is very much hoped that all readers of this journal who have an interest in the Lepidoptera will wish to make this event a success by running a lamp overnight to the morning of 18 July and listing all species captured. Full details from, and results to, the national collator, Brian Goodey, 298 Ipswich Road, Colchester, Essex CO4 4ET.

Further comment on *Adela cuprella* (D.&S.) (Lep.: Incurvariidae) in Berkshire

I was somewhat surprised to see Keith Bland's note (*antea*: 103) included in our last issue, particularly so as he had written to me in December asking for verification of earlier Berkshire *A. cuprella* records. He had included a print-out of his forthcoming note and I had assumed that my reply, through its explanation, would have avoided unnecessary further publication as well as the use of some unfortunate phraseology.

As it was my letter of 8 June 1964 that prompted all this correspondence I will clarify matters. As a contribution to the Incurvariid chapter in *MBGBI* **1** I gave details of Reading Museum's Berkshire specimens and, although no *A. cuprella* were in the H.L. Dolton collection, I included two records that he published in a 1962 paper Microlepidoptera of the Reading Area (*Reading Nat.* **14**: 45). These are the sources of the Streatley Hill and Sulham Woods records quoted by Keith Bland. Over 20 years later, when working on *The Butterflies and Moths of Berkshire,* the 1964 correspondence had slipped my memory, hence I sought the assistance of those then working on later volumes of *MBGBI* as to the source of Berkshire map dot for *A. cuprella*. This enquiry proved unsuccessful.

Keith's letters have at least prompted me to solve Dolton's mention of this moth at Streatley and Sulham. In January I re-examined Reading Museum's Microlepidoptera Collection and I came across some of his specimens of *Nemophora metallica* (Poda) *scabiosella* (Scop.) with *exactly* the same provenances as that accorded to *A. cuprella*. Dolton, I knew well as a very experienced, helpful microlepidopterist not given to making hurried judgements, but one whom I feel sure would not mind my putting the record straight. Ian Sims can therefore still be well pleased with his first Berkshire record of *A. cuprella* and, as I am well aware, is already able to publish further details of this beautiful little moth as and when he thinks appropriate.– B.R. BAKER, 25 Matlock Road, Caversham, Reading, Berkshire RG4 7BP.

SUBSCRIBER NOTICE

Relative frequency of the banded form of the Riband Wave *Idaea aversata* (L.) (Lep.: Geometridae): a request for data

The ratio between the typical, banded form of the Riband Wave *Idaea aversata* and its plain form *remutata* varies regionally in Britain. In some areas, such as north-east Scotland, the banded form seems not to occur at all. There may also be substantial differences between sites even within the same vice-county, perhaps related to habitat. I would welcome accurate counts of the two forms from any observer who catches adequate sample sizes of this species. Please give location, vice-county and a simple description of the habitat, for instance "suburban garden" or "mature deciduous woodland".– ROY LEVERTON, Whitewells, Ordiquhill, Cornhill, Banffshire AB45 2HS.

BUTTERFLIES AND DRAGONFLIES IN NORTHERN GREECE, 27 JUNE - 9 JULY 1997

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IN SOUTHERN GREECE there had been reports that Albania had dissolved into civil war and that gangs of armed Albanians were fleeing across the border into the northern Greek mountains. So, it was with some trepidation that AWD travelled north (after a month in the Pelopónnisos) to meet TB and VB in Flórina, north-west Greece. TB and VB were continuing with their long-running project, attempting to photograph "all" the European butterflies in their natural habitats. On this trip, they hoped to photograph a number of species including Greek populations of the "glider" butterflies *Neptis sappho* Pallas and *Neptis rivularis* Scopoli.

We met in the busy main square of Flórina on the evening of 27 June, and on 28 June we explored the beech *Fagus* woods in the hills along the Pissoderi saddle to the west of Flórina (c1200-1400 m). Many species of butterflies were abundant along the logging tracks, in grassy meadows and by streams in this lush biotope. Many (including over twelve species of Argynninae) were feeding on bramble flowers *Rubus* sp. These included *Brenthis daphne* D. & S., *Argynnis adippe cleodoxa* Ochsenheimer and *A. niobe eris* Meigen. Most of these species tended to feed with their wings open, allowing the upper wing-surfaces to be photographed. However, male and female *Melitaea arduinna rhodopensis* Freyer (which were also present feeding on *Rubus* flowers) tended to feed with their wings closed. Male *arduinna* were also seen "sipping" moisture on wet mud at stream margins. *Colias caucasica balcanica* Rebel (males and females) were also present, but they tended to feed with wings closed and it was unfortunately not possible to capture their lovely orange upper-sides on film. We did not see any white female *balcanica* (f. *rebeli* Schawerda). At c1350 m, *Erebia ligea* L. were feeding on the *Rubus*, but tended to fly only in shady areas.

Male cuckoos *Cuculus canorus* used two types of call from the tall beech trees and were responded to by the bubbling call of the females. The area was rich in Orthoptera, including a huge bush cricket (Tettigoniidae).

We were keen to photograph *Coenonympha leander leander* Esper, but suspected we would be too late in the year for adults. We peered closely at the many fresh *Rubus*-feeding *Coenonympha*, but these were mostly *arcania* L. and we saw no *leander* among them. Later we saw a single worn female *leander* flitting about and settling on bracken *Pteridium aquilinum* fronds.

In the afternoon of 28 June, we found several fresh *leander* nectaring at a patch of Thyme *Thymus* sp. in steep meadows among the beech woods. A few fresh male and female *Melanargia russiae japygia* Cyrillo were feeding with *M. galathea* f. *leucomelas* Esper at tall red-flowered thistles. The area was very rich in a diversity of butterfly species including *Maculinea arion obscura* Christ and *Lycaena candens* Herrich-Schäffer.

On 29 June we headed west to the Prespa Lakes which lie on the border between Greece, Albania and Yugoslavian Macedonia. We stopped in the hills (c1000 m) that overlook the lakes from the South. Here we tried to photograph *Iolana iolas* Ochsenheimer, including females that were laying eggs on the pods of the bladder senna *Colutea* bushes. Both they and the one or two males present were quite worn, and in any case difficult to photograph as the *Colutea* bushes were on a steep slope. We moved on across the causeway between the two freshwater lakes and explored along the edge of the reed-beds, which were full of the calls of breeding birds. The whole area is a National Park and entrance into the reed-beds is prohibited. However, we met the wardens who inspected our licence from the Greek Ministry of Agriculture and gave us permission to photograph. We were lucky to see a few *Lycaena dispar rutila* Werneburg. As in many parts of Europe, this species has become increasingly rare as wetland is drained and insecticide use increases. The *dispar* were all large first brood males. As with the *iolas*, we were late in their season and quite lucky to find them still on the wing. Also present were a few *Agrodiaetus admetus* Esper (one of VB and TB's "target" species for this expedition). The individuals seen here were much smaller than *admetus* encountered at other sites in north Greece during the current visit, and similarly smaller than *admetus* that AWD had seen near Kalávryta in southern Greece ten days earlier.

Following the road west towards Albania, we met a car-load of over-excited Greeks heading back east who implored us not to go that way, although we could not understand why they were so distressed. Until now we had quite forgotten about the Albanian issue. There were many soldiers about, but that was to be expected near a border post. We decided to go a few kilometres along the road and stopped in low-growing oak *Quercus* woodland. Here many species of hesperiid and lycaenid butterflies were settled on the wet mud. These included *Pyrgus cinarae* Rambur, *P. serratulae* Rambur, *Spialia phlomidis* Herrich-Schäffer, and *Agrodiaetus ripartii pelopi* Brown. Male *Hipparchia volgensis delattini* Kudrna (identification confirmed by male genitalia) were also coming to wet mud. We searched in the oak woods for *Kirinia climene* Esper (which has been reported from this area) but it was very hot and if *climene* were present in adult form we did not see them.

It was then that we had "trouble" with the Albanians. Two colourful and very friendly Albanian shepherds were bringing their sheep to water. They obviously did not have civil unrest at heart, but their savage dogs did. Only serious beating by their masters and brain-scrambling ultrasonic rays from TB's patent "dog-dazer" kept the brutes at bay.

That evening we ate barbecued carp (fresh caught from the Prespa Lakes) in a small tavern at the western end of the causeway. AWD camped at the site near the tavern to watch the wetland birds and hear the dawn chorus from the reed-beds. TB and VB stayed at a small hostel run by a women's cooperative in a nearby village.

On 30 June we followed the rough track out of the village towards Mount Varnoūs. Many *Apatura ilia* D.&S. were flying around the willows *Salix* sp. along

the edge of a stream (altitude c1000 m). Some males and females were settling on the trunk of a willow and probing their probosces into cracks in the bark, perhaps to find sap. Some fed with wings closed, others with their wings gently 'pumping'. Some males came down from the willow canopy to wet mud, but the females generally tended to stay high up and we observed a female *ilia* laying eggs in the canopy of a *Salix* tree. The butterfly settled on the top of a leaf before curving its abdomen under the leaf to lay a single egg.

Other species along the stream included *Agrodiaetus ripartii pelopi, C. balcanica*, *Pyrgus sidae* Esper, male *Polyommatus eroides* Frivaldsky and *Pseudophilotes vicrama schiffermuelleri* Hemming. Here we met a Danish entomologist, Arne Viborg, who was studying *Apatura iris* L. males that were coming down from the trees to a muck heap. Arne had also seen *Apatura metis* Freyer near Kónitsa.

We followed a track steeply up through the tree-line and into sub-alpine pasture at c1500 m. Here we found *Erebia ottomana* Herrich-Schäffer, another of our "target" species. Both males (dark upper-side, silver-grey under-hind wings) and females (paler upper-side, yellow-grey under-hind wings) were nectaring at *Scabiosa* flowers. They obliged the photographers by opening their wings when clouds passed over and later in the day (after 1800 hours), when it had become cooler. Flying with the *Erebia* was a fine form of *Boloria graeca* Staudinger that was bright orange with large black markings. These *graeca* were more like specimens from Mount Veluchi (Timphristos) to the south, than the smaller and less well marked race (f. *balcanica* Rebel) from Mount Falakron to the east. Also present were a number of other higher altitude species including *M. russiae japygia* (far more abundant here than in the meadows near Flórina), *Eumedonia eumedon* Esper, *Coenonympha rhodopensis* Elwes and *C. leander*. We saw no sign of *Erebia epiphron roosi* Arnscheid & Sterba (which has been recorded from this area), but were probably too early in the year.

We drove on until the track was too eroded to allow further passage and from 1800m enjoyed a fine view over steep sub-alpine pastures. A number of streams, each edged by a diversity of colourful flowers and an associated butterfly fauna, were running down the slopes. We climbed up the side of one and saw *Erebia medusa* D. & S., *Aricia artaxerxes allous* Geyer, *Hamearis lucina* L. (a species that Pamperis (1997) describes as always flying in woodland) and *E. eumedon* settling on flowers that we provisionally identified as *Geranium ?sylvaticum* and *Geranium coccineum. B. graeca* were also present at this altitude, along with a fine, freshly emerged male *Lycaena candens*. As evening was coming and with it heavy storm clouds, we started back down the bumpy road from the mountains.

The first of July found us heading south to Kastoriá. We climbed up to the dry, treeless hills (altitude 800-1000 m) north of Lake Kastoriá and looking south could see the town jutting out on a promontory into the lake. We searched unsuccessfully for some time on the rusty red-brown slopes for *Pseudochazara mniszechii tisiphone* Brown (Fig. 1), but eventually saw a male visiting a large thistle in a gully. Pamperis (1997) photographs this species, but incorrectly names it as *P. cingovskii* Gross

(a species from the Republic of Macedonia, and currently not known from Greece). See Tolman & Lewington (1997) for an accurate illustration of *cingovskii*. Several *P. anthelea amalthea* Frivalsky were flying with the male *tisiphone* and both species were so easily disturbed that they were very difficult to photograph. The male *tisiphone* was particularly difficult to see once it left the flower and settled on the ground. It would sit with its wings closed, pulling the fore-wings down between the hind-wings (which were the same colour as the red-brown rocks) and turning so that its wings cast the minimum of shadow. When we disturbed it again, it would flit away and squeeze into small cracks in rocks or hide in the shadow of stones.

Later that day and on 2 July, we explored sites along the mountainous road between Kastoriá and Kónitsa. At 1300 m we found female *Maculinea alcon* laying white eggs singly on *Gentiana cruciata*, but the plants (which were not yet in flower) were dotted all over with eggs on the upper leaves and flower buds. The females were heavily suffused with grey-brown scales and the species at this locality would be better described as *alcon* D. & S. than *rebeli* Hirschke. However, females seen by AWD at Náoussa (altitude c1000 m) on 25-26 June, also laying eggs on *G. cruciata* are more similar to the *rebeli* that fly in the Pyrenees, having bluer wings and more prominent black maculinations. It appears that both forms (species?) of *alcon* may occur in Greece and a detailed study is required to investigate this further, especially as Tolman & Lewington (1997) record only *rebeli* (as a species distinct from *alcon*) as present in Greece.

TB found a few worn *Coenonympha leander orientalis* Rebel in a grassy clearing in pine trees. These usually tend to fly in April/May in NE Greece, so we were lucky to see them, and their presence as adults confirmed our suspicion that it was a late year. At a number of locations, *K. climene* was fairly common. During the hot parts of the day they tended to remain in the foliage, but towards sunset they flew about the foliage in a manner that was reminiscent of *Maniola jurtina* L. Like their relative *Kirinia roxelana* Cramer, they tended to 'contour' the trees and shrubs, often flying into the foliage, sometimes settling on branches. Three males were observed close together on the branch of an oak sapling. They appeared to be feeding as their probosces were extended, but there were no obvious sap runs.

One male flew directly into the foliage of an oak and then fell to the ground with another *climene*. The male flew away leaving the other (which proved to be a very worn female) among the leaf litter at the base of the tree. After about 1700 hours even more males appeared, settling for extended periods in afternoon sunshine on exposed leaves of the oaks, generally with wings closed. Occasionally they briefly opened their wings. As the sun set, the *climene* moved from the shaded trees to still-sunny patches on adjacent trees. No females were seen with the males, although a few females were seen fluttering around the foliage some distance away across a road. There was continual mutual disturbance between the male *climene* and "aggressive" interactions between male *climene* and *C. arcania*.

After 1800 hours, the males became even more abundant and during most of the day nearly all the females and most of the males must have been resting in the

foliage. This may explain why we did not see *climene* at the known site near the Prespa Lakes on a very hot day. Other interesting species included *Pebejus pylaon* Frivaldsky and *P. argyrognomon* Bergsträsser.

Earlier in the day we had met a Hungarian entomologist, Tamás Hácz. He had just found *P. tisiphone* flying with *P. anthelea* and *Satyrus ferula* Fabricius up and down steep grey-coloured slopes by the roadside. He showed us the site. Our previous experiences of *tisiphone* near Kastoriá and (on a previous expedition) to the south of Mount Smólikas, suggested that the species was only found where the ground colour was predominantly red-brown (matching the underside colour of *tisiphone*'s wings). The new site showed that this was not the case.

We explained to Tamás that we were planning to head east in search of *Neptis* species. He seemed rather doubtful that we would find the species in Greece, even though we had been given a reliable location. He suggested we go to Hungary, where he said *rivularis* and *sappho* were common, even in urban areas and offered help for a future expedition.

In the evening we went to Kónitsa and stayed the night at To Dhendro, a famous haunt of entomologists. Iannis, the landlord, was in excellent form and we sampled various (some unpleasant) wines and spirits into the early hours. Iannis told us that he had been thrilled when the Belgian entomologist Jos Dils had telephoned him to ask the correct spelling of his (Iannis') surname. "Very good", Iannis had thought, "he's going to send me a cheque". Iannis did not know whether to be pleased or disappointed when he learnt that there was no cheque forthcoming, but that Jos intended to name a new species of fly after him!

On 3 July, we set off in two cars for a *P. tisiphone* site to the north-east of Mount Smólikas. Between 1000-1200 m the species was far more common than at Kastoriá, but again flying with *P. amalthea*. In this locality, the rock colour was predominantly grey. When settling on rocks, the *tisiphone* butterflies stood high on their legs, keeping their bodies clear of the hot surface (Fig 1). The underside wing colour of *tisiphone* specimens from this locality (where the predominant rock colour was grey) appeared to be paler than the wing colour of specimens from areas where the rocks were predominantly red-brown. The wings appeared paler because of a (slightly) paler band in the under hind-wing post-discal area. This variation between sites may be an example of natural selection in progress, with the specimens that best match the local ground colour being less prone to predation. However, only short series of specimens have been compared.

While AWD stayed to observe the *tisiphone*, VB and TB moved on to Vogatsikó to look for *T. balkanicus* Freyer and *Artogeia krueperi* Staudinger. At this site, many butterflies were present on wet mud by a water trough. Eventually a *balkanicus* was seen flying over a rocky slope, occasionally settling on the ground or vegetation. Two other males were photographed drinking on the wet mud. There was no sign of *krueperi*.

News in England had lead us to believe that the Balkans were paralysed by civil war. However, this did not appear to have prevented a Balkan Brass Band Festival from taking place in Véria. VB and TB had trouble finding a room in Véria because

of the festival and TB is still awaiting the tape of Balkan Brass Band music that a hotelier promised to send to him.

We re-met at a cafe in Dráma (where the waitress was an international weight-lifter who was "resting" after some bad advice from her trainer about performance enhancing substances) on the evening of 4 July, and the next day took the road east to a small village next to the River Nestos. We explored a site by the river (altitude <200m) where VB and TB had found *Zerynthia cerisy* Godart laying eggs on *Aristolochia clematitis* in June during a previous visit. We searched for *metis* and *sappho*, but found neither. Golden orioles *Oriolus oriolus* were calling from the *Salix* trees.

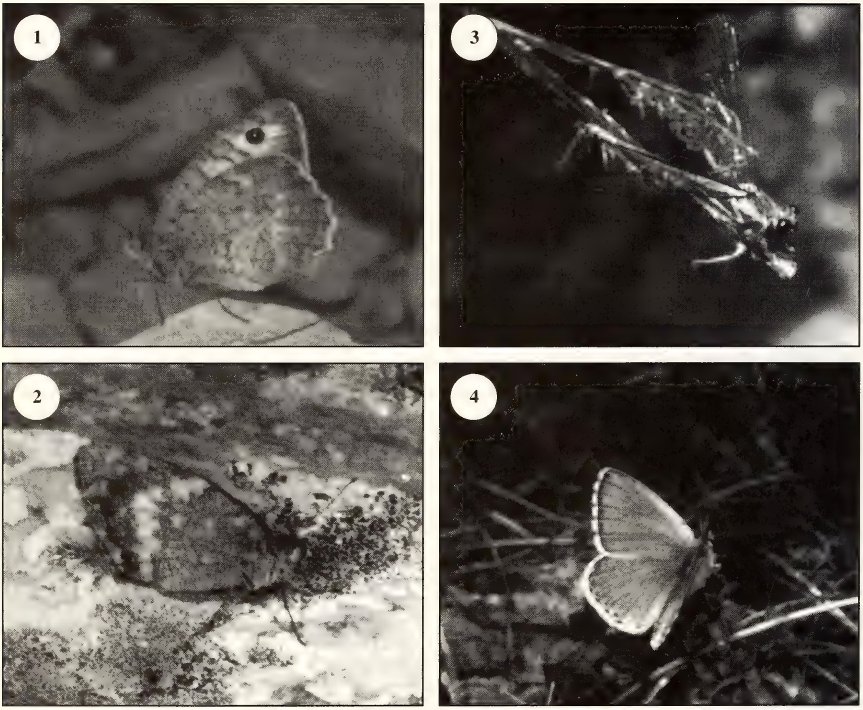

Plate D: Butterflies and dragonflies in northern Greece.

Fig. 1 *Pseudochazara mniszechii tisiphone* Brown (female), north-west Greece 3 July 1997
Fig. 2 *Pseudochazara orestes* De Prins & van der Poorten (male), north-east Greece 6 July 1997
Fig. 3. *Epallagne fatime* Charpentier (male), north-east Greece 6 July 1997
Fig. 4. *Lysandra philippi* Brown (?) (male), north-east Greece 9 July 1997
Photos: T. Benton

In the baking heat, we took a minor road out of the village, in the hope of finding *Hipparchia syriaca* Staudinger. Along the sides of the road were stacks of harvested oak wood where the graylings were hiding. When disturbed, they shot away and we had no chance of photographing any. Further on, the road lead us up (c 1500 m) into vast tracts of beech *Fagus* woods on the border with Bulgaria. There were many butterfly species including a new *Erebia* for the trip, *euryale* Esper, and very large *Cyaniris semiargus* Rottemburg, but no sign of *N. sappho* or *N. rivularis*.

We explored Mount Falakrón (north-west of Dráma) on 6 July. Along a small stream at c600 m, we found many Odonata including *Calopteryx splendens* Harris, *Platycnemis pennipes* Pallas, *Anax imperator* Leach, *Orthetrum brunneum* Fonscolombe and a fine species of damselfly, *Epallage fatime* Charpentier (Fig. 3). This damselfly is similar to *Calopteryx* spp., and we saw several males, which had a blue abdomen and clear wings with smoky black tips. They settled on twigs or stream-edge vegetation and behaved rather like darter dragonflies when in pursuit of insect prey.

Higher up the mountain (c1000m), where a track passed through light deciduous woodland we photographed *Hipparchia senthes* Frustorfer and *H. fagi* Scopoli on horse dung. At 1200m we came to a rough grassy area above the tree-line and at the top of a sheer escarpment that fell away abruptly to the south. Here male and female *Pseudochazara orestes* De Prins and van der Poorten were flying up the mountain side on strong air currents. Nearby several were feeding at a *Dianthus* sp. and at a taller, yellow-green scabious-like flower in a steeply sloping meadow. On the latter, swaying in the wind, the *orestes* closed down their fore-wings between their hind-wings. They also did this when resting on rocks. The underside of the hind-wings of the *orestes* is pale grey with a broad white post-discal band. This made them difficult to see when at rest on the grey rocks (Fig. 2). A few *Elphinstonia penia* Freyer where flying up and down the sheer mountain side, and nectaring at flowers in the rough pasture. Several *Brenthis hecate* D.&S. were also present in the area.

On 7 July, we explored sites along the road west from Dráma towards Granítis. Here *Everes alcetas* Hoffmansegg, *Everes decoloratus* Staudinger (identification confirmed by male genitalia) and *Cupido minimus* Fuessly males were present with many other lycaenids on wet mud. *E. decoloratus* was also frequently observed nectaring at flowers of a tall yellow-petalled *Trifolium* sp. A few male *Clossiana dia* L. were flying through the area.

We paid a brief visit to a nearby area, where VB and TB had seen *E. penia* laying eggs on *Mathiola tessela* in June during a previous visit to northern Greece. We saw only one *penia* moving rapidly through the heavily grazed area on this visit.

In the afternoon of 7 July, we explored Mount Falakrón. We hoped to find the population of *Maculinea alcon* that has been reported from this area, so that we could compare it with the populations from Náoussa and from the Kastoriá-Kónitsa road sites. We searched around the village of Vólokas, but did not see this species. We followed the metalled road up to the ski-centre (c1700 m). On a steep, flowery sub-alpine slope we saw a *Pyrgus* sp. female laying a single pale green egg on the underside of a *Potentilla* sp. leaf. *Coenonympha rhodopensis* was flying with

Boloria graeca (described above in comparison with specimens from Mount Varnoūs) and a number of other high altitude species. We also searched for *Polyommatus andronicus* Coutsis and Ghavalas, but found only second (or later) brood *P. icarus* Rottemburg.

A second search for *alcon* near Vólokas on 8 July was again unsuccessful, but this time we did find some large *Polyommatus* specimens flying with obvious second brood *P. icarus*. We thought that these might be *andronicus* and so captured some specimens for further study. However, comparison of our Vólokas specimens with illustrations of *andronicus* made by John Coutsis (Coutsis & Ghavalas, 1995), suggests that we had found only large second brood or late first brood *icarus*.

We took a rough track through Vólokas to a confluence between the River Nestos and a tributary. It began to rain hard and we tried to follow a route shown on our Greek Military map that did not exist on the ground. There is a large area to the north-east of Mount Falakrón that deserves more study in better weather.

On 9 July, we drove to the ski-centre on Mount Pangéon. We searched for *Agrodiaetus nephohiptamenos* Brown in the sub-alpine pasture (1700-1900 m), but were probably too early for this species. A blue female lycaenid was settling and possibly ovipositing on *Hippocrepis* sp. We thought this was *Lysandra philippi* Brown. Next we saw a bright blue male, which we assumed was a male *philippi*. This was flying with a darker blue male *Lysandra bellargus* Rottemburg. We photographed (Fig. 4) and captured the male butterfly that we assumed to be *philippi*, and later compared it with photographs of *philippi* taken by Bernard Watts, and those in Pamperis (1997). Our specimen was brighter blue than *philippi*, and we suspect it may have been a *philippi* x *bellargus* hybrid. However, the genitalia appeared to be identical to those illustrated for *philippi* by John Coutsis (Brown & Coutsis, 1978). Almost four weeks after our visit, Bernard Watts visited the site in early August and found "real" *L. phillipi* only just beginning to emerge. Clearly more research on the relationships among this group of butterflies is needed.

We parted company at the base of Mount Pangéon; VB and TB heading back to England via Thessaloníki, and AWD to north-east Turkey via Istanbul.

Acknowledgements

We thank Bernard Watts, John G. Coutsis, Michael Chinery, David and Sheila Howell, Andrew Hinitt, Jos Dils, Horst Arheilger, Alain Olivier and Dr C. J. Luckens for advice and information. We thank The Greek Ministry of Agriculture for Research Licence no. 61166/83.

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THE MOTHS OF WIMBLEDON: 1955-1997

J.V. Dacie

10 Alan Road, Wimbledon, London SW19 7PT.

DURING 1962, in this journal, I listed the 300 species of macro-moths that I noted since 1955 when I first started running a mercury-vapour moth trap in the garden of my house, situated in a residential area of Wimbledon on high ground near the top of Wimbledon Hill, about half-a-mile from Wimbledon Common. There are many large gardens between our house and the Common, and many long-established trees. With few exceptions, which were individually noted, all the species recorded had been attracted to the trap.

In 1971 and 1978 I listed, also in this journal, 32 and 18 additional species, respectively, that had been caught, making a total of 350 species noted between 1955 and 1977. Since 1977, 51 additional species have been caught, bringing the total number of species recorded between 1955 and 1997 up to 401.

It has been interesting to compare the more recent fauna, ie., species noted in the 1970s and later, with those present in the two preceding decades. For instance, 25 species apparently resident in the 1950s, 1960s and early 1970s, of which more than one specimen had been caught, have not been noted subsequently. Conversely, 37 species, of which more than one specimen had been caught, had not been seen prior to the 1970s. The majority of species have, however, been noted in greater or lesser numbers throughout the whole 42 years the trap has been run, ie. are residents or more common migrants. In complete contrast, as many as 39 species have been represented by single specimens only; some at least of these are well-known migrants.

Three separate lists are appended: Table 1: apparently resident species recorded between 1955 and 1975, but not seen subsequently; Table 2: species recorded for the first time between 1970 and 1997; and Table 3: species of which single specimens only have been caught. The code numbers are those used by Plant (1993) in his work *Larger Moths of the London Area*.

Table 1. Species recorded between 1955 and 1975 but not caught subsequently.

The dates recorded are the last dates of capture of species of which more than one specimen had been noted.

GEOMETRIDAE

1720 *Orthonama obstipata* (Fabr.) 14.viii.69

1734 *Scotopteryx luridata* (Hufn.) 30.vi.68

1912 *Ennomos quercinaria* (Hufn.) 3.viii.69

SPHINGIDAE

1976 *Sphinx ligustri* (Linn.) 26.vii.56

NOTODONTIDAE

1995 *Cerura vinula* (Linn.) 25.vii.59

LYMANTRIIDAE

2031 *Leucoma salicis* (Linn.) 3.vii.60

NOCTUIDAE

2102 *Ochropleura plecta* (Linn.) 2.vi.58

2114 *Graphiphora augur* (Fabr.) 26.vi.65

2122 *Diarsia brunnea* (D.&S.) 6.vii.67

2136 *Naenia typica* (Linn.) 12.vii.64

2139 *Cerastis rubricosa* (D.&S.) 23.iv.63

2159 *Lacanobia suasa* (D.&S.) 26.viii.71

2184 *Orthosia opima* (Hb.) 24.iv.60
2186 *O. gracilis* (D.&S.) 10.viii.60
2211 *Cucullia absinthii* (Linn.) 9.viii.72
2301 *Dypterygia scabriuscula* (Linn.) 3.vii.60
2316 *Cosmia affinis* (Linn.) 21.vii.59
2317 *C. diffinis* (Linn.) 11.viii.75
2326 *Apamea crenata* (Hufn.) 29.vi.63
2358 *Amphipoea fucosa* (Freyer) ssp. *paludis* (Tutt) 5.viii.68
2364 *Gortyna flavago* (D.&S.) 9.ix.60
2368 *Celaena leucostigma* (Hb.) 13.viii.69
2422 *Pseudoips prasinana* (L.) *britannica* (Warren) (=*fagana* (Fabr.)) 3.vi.59
2449 *Abrostola triplasia* (L.) (=*trigemina* (Werneb.)) 22.v.61
2466 *Lygephila pastinum* (Treit.) 8.vii.66

Table 2. Species recorded between 1970 and 1997, not caught previously.
The dates recorded are the last dates of capture of species of which more than one specimen had been noted.

DREPANIDAE
1647 *Watsonalla cultraria* (Fabr.) 3.viii.82

THYATIRIDAE
1658 *Cymatophorima diluta* (D.&S.) 19.ix.82

GEOMETRIDAE
1690 *Scopula imitaria* (Hb.) 8.vii.83
1699 *Idaea rusticata* (D.&S.) 28.vii.75
1708 *I. dimidiata* (Hufn.) 25.vii.74
1758 *Eulithis pyraliata* (D.&S.) 4.vii.95
1769 *Thera britannica* (Turn.) 1.vi.86
1811 *Eupithecia tenuiata* (Hb.) 12.vii.76
1828 *E. satyrata* (Hb.) 29.vii.74
1842 *E. simpliciata* (Haw.) 14.viii.72
1844 *E. indigata* (Hb.) 16.v.82
1857 *E. tantillaria* (Boisd.) 12.vi.77
1859 *Chloroclytis chloerata* (Mab.) 12.v.74
1864 *Chesias legatella* (D.&S.) 6.x.79
1889 *Macaria notata* (Linn.) 19.viii.93
1925 *Apocheima hispidaria* (D.&S.) 9.iii.78
1957 *Lomographa bimaculata* (Fabr.) 17.vi.84

SPHINGIDAE
1978 *Hyloicus pinastri* (Linn.) 12.vii.70

NOTODONTIDAE
1997 *Furcula furcula* (Cl.) 5.viii.71

LYMANTRIIDAE
2029 *Euproctis chrysorrhoea* (Linn.) 2.viii.75
2033 *Lymantria monacha* (Linn.) 26.vii.96

ARCTIIDAE
2035 *Thumatha senex* (Hb.) 7.vii.77
2050 *Eilema lurideola* (Zinck.) 25.vii.79

NOCTUIDAE
2112 *Noctua interjecta* (Hb.) 14.viii.71
2170 *Hadena compta* (D.&S.) 28.vi.79
2240 *Lithophane leautieri* (Boisd.) 28.x.77
2252 *Polymixis flavicinta* (D.&S.) 29.ix.80
2256 *Eupsilia transversa* (Hufn.) 3.x.76
2259 *Conistra ligula* (Esp.) 25.x.79
2264 *Agrochola macilenta* (Hb.) 22.x.72
2265 *A. helvola* (Linn.) 13.x.80
2276 *Xanthia ocellaris* (Borkh.) 2.x.78
2335 *Apamea scolopacina* (Esp.) 28.vii.83
2379 *Coenobia rufa* (Haw.) 2.viii.94
2403 *Heliothis peltigera* (D.&S.) 7.viii.94
2423 *Nycteola revayana* (Scop.) 19.viii.76
2473 *Laspeyria flexula* (D.&S.) 11.vii.86

Table 3. Species of which only one specimen has been caught: 1955-1997.
The dates recorded are the dates of capture of the species.

HEPIALIDAE
18 *Hepialis fusconebulosa* (DeG.) 6.vi.60

LASIOCAMPIDAE
1631 *Poecilocampa populi* (Linn.) 18.xi.94

GEOMETRIDAE
1674 *Iodis lactearia* (Linn.) 6.vii.57
1678 *Cyclophora puppillaria* (Hb.) 16.x.59
1681 *C. linearia* (Hb.) 7.vi.55
1721 *Xanthohoe biriviata* (Borkh.) 8.vii.89

1745 *Larentia clavaria* (Haw.) 13.x.84
1752 *Cosmorhoe ocellata* (Linn.) 22.viii.78
1755 *Eulithis testata* (Linn.) 7.viii.81
1758 *E. pyraliata* (D.&S.) 4.vii.95
1765 *Cidaria fulvata* (Forst.) 24.vi.71
1776 *Colostygia pectinaria* (Knoch) 29.viii.85
1804 *Perizoma bifaciata* (Crewe) 30.viii.77
1807 *P. albulata* (D.&S.) 5.vii.82
1855 *Eupithecia phoeniciata* (Ramb.) 15.ix.77
1874 *Euchoeca nebulata* (Scop.) 12.vi.89
1875 *Asthena albulata* (Hufn.) 17.v.89
1881 *Trichopteryx carpinata* (Borkh.) 10.v.89
1885 *Abraxas sylvata* (Scop.) 20.vii.96
1888 *Ligdia adustata* (D.&S.) 19.viii.94
1896 *Semithisa brunneata* (Thumb.) 25.vi.60
1903 *Plagodis pulveraria* (Linn.) 4.vi.82
1910 *Apeira syringaria* (Linn.) 2.vi.59
1919 *Selenia tetralunaria* (Hufn.) 20.vii.87
1950 *Parectropis similaria* (Hufn.) 29.v.89

ARCTIIDAE
2037 *Millochrista miniata* (Forst.) 13.vii.84
2040 *Cybosia mesomella* (Linn.) 30.vi.68

NOCTUIDAE
2149 *Polia trimaculosa* (Esp.) 26.vi.73
2153 *Heliophobus reticulata* (Goeze) 27.vi.59
2183 *Orthosia miniosa* (D.&S.) 24.iv.94
2197 *Mythimna straminea* (Treit.) 21.viii.77
2203 *M. unipuncta* (Haw.) 1.x.85
2235 *Lithophane semibrunnea* (Haw.) 13.iv.79
2248 *Dryobotodes eremita* (Fabr.) 26.ix.83
2391 *Chilodes maritimus* (Tausch.) 19.viii.76
2400 *Heliothis armigera* (Hb.) 22.x.88
2418 *Earias clorana* (Linn.) 4.vii.59
2475 *Parascotia fuliginosa* (Linn.) 9.viii.91
2476 *Hypena crassalis* (Fabr.) 27.vii.85

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Range expansion in the Ringlet *Aphantopus hyperantus* (L.) (Lep.: Nymphalidae)

In Britain, the northern limit of the Ringlet's distribution is correlated with the 14°C July isotherm. The species is absent from areas over 300m in the north of its range but also from large areas of lowland central Scotland and northern England where it formerly occurred in the past.

When I moved to North East Fife in 1978 I was struck by the apparent contrast in the ranges of Meadow Brown and Ringlet. The former species was common and widespread over the whole of Fife, while the Ringlet, although common and numerous in localities in North East Fife District, appeared to be entirely absent from Kirkcaldy and Dunfermline Districts. This pattern of distribution was confirmed by Thomson (1980, *The Butterflies of Scotland: A Natural History*). I began mapping butterflies by 1km squares in 1979 and encouraged other naturalists working in the area to send me their records. By 1982 local mapping confirmed the Ringlet in OS grid squares NO 10, NO 11, NO 21, NO 22, NO 30, NO 31, NO 32, NO 41, NO 42, NO 51 and NO 52. Ringlet were apparently widespread north of a line extending east by north-east from Tarhill, in Kinross, on the northern shore of

Loch Leven (where a small population was known to John Clayton) to Cults Farm, south of Cupar, across to Buddo Ness, some 4km to the east of St. Andrews.

This distribution, which is shown in Heath, Pollard & Thomas, 1984 (*Atlas of Butterflies in Britain and Ireland*), cannot be explained either by habitat distribution or on topographical grounds. Although Loch Leven, the Lomond Hills, which rise to 400m, and the line of lower hills extending eastwards offer some physical barrier to Ringlet dispersing southwards, there are no such barriers to the south and south-east of St. Andrews.

By 1983 I had got used to the notion of Ringlet being inexplicably restricted to the north of the county and was, therefore, surprised to find a single butterfly on a field edge adjacent to the B.941 road (NO 490044) near Balcarres in July of that year, some 8km beyond the Ringlet's "southern limit". This sighting was also the first record from NO 40 and was followed by another report by Simon Leach from Gilston on 16 August. In the same year Bill Melrose mapped Ringlet in a number of 1km squares to the south of Cults Hill, Jim Glover noted small number on the east shoulder of the East Lomond for the first time, and John Clayton found Ringlet in two new squares by Loch Leven.

In 1984 Jim Glover found that Ringlet had spread to just north of Glenrothes in 13 new contiguous 1km squares; there were reports from nine additional 1km squares in NO 40, and a first report from NO 50. 1985 saw Ringlet on the south coast of the East Neuk for the first time this century: Roger Banks recorded one at Crail (first for NO 60); Anne-Marie and Chris Smout reported Ringlet from Anstruther and Kincraig Head, near Elie (first for NT49). In 1986 John Clayton found Ringlet by Portmoak on the south-east side of Loch Leven and the first records from Dumfermline District came with sightings near Kelty NT 19 and Blairhall NT 08. By the time butterflies records up to 1992 for Fife were published (Smout & Kinnear, 1993 *The Butterflies of Fife: A provisional atlas*. Fife Regional Council) there were new records from the outskirts of Kirkcaldy NT 39, but still less than a dozen sightings of Ringlet for the whole of southern Fife.

In the past six years Ringlet range has continued to expand and this species has now been recorded from every 10km square in Fife except NT 28 and the Forth islands. Similar expansion of range appears to be taking place in the Lothians.

The absence of Ringlet from urban and industrial Britain has been noted since the last century. However, as Heath *et al.* (1984) have pointed out, although Ringlet distribution is similar to that of lichens affected by sulphur dioxide, there is "no evidence of susceptibility to sulphur dioxide or other pollutants". A few years ago I was discussing air pollution and its link with Ringlet distribution in Fife with Ben Jack, who farms in the Lomond Hills. He remarked that farmers were now having to apply sulphur to compensate for the drop in air borne deposits. These compounds will also typically kill off rusts and fungi. Could it be that these rusts and fungi occurring on grasses provide essential nutrients for the development of Ringlet larvae? Steve Wallace of the Scottish Agricultural College has advised me that sulphur compounds are typically applied to cereal crops to control mildew at two to 10 kg/ha, and 10 to 30 kg/ha on brassicas such as oil seed rape in February/March.

Sulphur compounds such as ammonium sulphate are also being increasingly applied as a fertiliser in the early summer on grasslands cut for silage. Ringlet larvae would therefore be exposed to such treated areas throughout their development, which might explain why Ringlet are so rarely seen on improved grasslands. Until recently south Fife has been downwind of heavy industries and coal-burning generating plants which have produced considerable airborne sulphur pollutants. Has the higher ground of the Lomonds and Cult ridge been sufficient to restrict air borne drift into the north of the county and enabled the Ringlet to survive there? At any rate the rapid spread of Ringlet back to the south of Fife over the past 15 years is correlated with a decrease in heavy industrial activity upwind and the need for farmers in the east of Scotland to apply sulphur compounds to crops.

The apparent connection of Ringlet distribution and the possible effects of sulphur products on its larval food plants is a subject which warrants further investigation by laboratory studies.– P.K. KINNEAR, 20 East Queen Street, Newport-on-Tay, Fife DD6 8AY.

Clitostethus arcuatus (Rossi) (Col.: Coccinellidae) from malaise traps in Northamptonshire, Norfolk and Hampshire

A single specimen of this distinctive small ladybird was taken by RCW between 5 and 8 August 1995 in a malaise trap in the wooded part of a rural garden at Hemington, Northamptonshire (OS grid reference TL 091852). Three further specimens have recently been identified among malaise trap samples collected by staff of the Entomology Branch of Forest Research (Forestry Commission) Alice Holt, between 14 and 28 June 1995, as part of their national Biodiversity Research Programme. Two were from a pre-thicket Scots pine plantation at Lynford, Thetford Forest, Norfolk (TL 833901), and the other from mature Scots pine in Denny Lodge Inclosure, New Forest, Hampshire (SU 341038).

Hyman & Parsons (1992. *Review of the scarce and threatened Coleoptera of Great Britain. Part 1*. UK Joint Nature Conservation Committee, Peterborough) list *Clitostethus arcuatus* (Rossi) as an RDB1, Endangered, species "recorded from Surrey, Berkshire, Oxfordshire, East Suffolk and Leicestershire before 1970 and from Oxfordshire and East Suffolk from 1970 onwards". At the time he wrote his New Naturalist monograph (1994. *Ladybirds*. Harper Collins), Michael Majerus was unaware of any additional recent records for this species, but in October 1993 I.S. Menzies (1994, *Br. J. Ent. Nat. Hist.* **7**: 172) had exhibited two specimens collected during 1993 from Bookham Common, Surrey (TQ 1255). One was beaten from holly beneath oak on 29 February, and the other was beaten from ivy on an oak trunk on 14 August. He also reported that Dr R.G. Booth had taken single examples at the same locality on 7 March 1992 and 6 March 1993. According to Majerus (1994, *op.cit.*) *Clitostethus arcuatus* may be associated with ivy on deciduous and coniferous trees where it feeds on the eggs of whitefly. D.B. Shirt (1987, *British Red Data Book 2 Insects*. NCC) reports how N.J. Mills found a breeding colony of *Clitostethus* in Oxford during 1979 and 1980 (but not 1981) on a bush of *Viburnum tinus* infested with whitefly.

As its name implies, the horseshoe-shaped, creamy-yellow mark on the elytra is characteristic of this species, although coloration of the rest of the elytra and pronotum appears to show considerable variation. The ground colour may range from black to a chestnut-brown and a second, less distinct, arc is variably developed posterior and lateral to the main arc. The centre of the pronotum may be black with lateral margins yellow, or the black may be restricted to the hind margin and a few central spots. The head is dark with legs and antennae yellow. The whole body, particularly the elytra, is covered with a short, fine, dense pubescence.– R. COLIN WELCH, The Mathom House, Hemington, Peterborough PE8 6QJ & MARTIN R. JUKES, Forest Research, Alice Holt Lodge, Farnham, Surrey GU10 4LH.

Update of early emergences of moths at Selborne

I have written before of the tendency towards early emergences of moths at Selborne in 1992-94 (Aston, *Ent. Rec.* **106**: 116; **107**: 4; **107**: 191; **110**: 54 and **110**: 189). This table now permits comparison with my earliest records of spring species in 1995-1997. The m.v. light was run on just over 320 nights during each year of the survey. In a few cases, the first spring specimen was observed during the preceding December: for example, the first *Apocheima pilosaria* of 1996 is taken to be that seen on 12 December 1995. In eight of these species, earliness for this site is either maintained or increased.

Species	1995-1997	1992-1994	*MBGBI* imago
1926 *Apocheima pilosaria* (D.&S.)	12 Dec 1995	26 Dec 1992	Jan-Mar
2190 *Orthosia gothica* (L.)	12 Dec 1994	29 Jan 1993	Mar-May
1932 *Agriopis leucophaearia* (D.&S.)	14 Jan 1995	29 Jan 1993	Feb, Mar
1960 *Theria primaria* (Haw.)	18 Jan 1995	9 Jan 1994	Jan, Feb
2243 *Xylocampa areola* (Esper)	19 Jan 1996	2 Mar 1992	Mar-May
1934 *Agriopis marginaria* (Fabr.)	1 Feb 1995	10 Feb 1994	Feb-May
2187 *Orthosia cerasi* (Fabr.)	7 Feb 1995	8 Feb 1994	Mar-May
1663 *Alsophila aescularia* (D.&S.)	12 Feb 1995	4 Feb 1994	Mar, Apr
1930 *Biston strataria* (Hufn.)	15 Feb 1995	4 Feb 1994	Mar, Apr
1947 *Ectropis bistortata* (Goeze)	20 Feb 1995	7 Mar 1994	Mar, Apr
1746 *Anticlea badiata* (D.&S.)	21 Feb 1995	27 Feb 1994	Mar, Apr
2182 *Orthosia cruda* (D.&S.)	27 Feb 1995	17 Feb 1993	Mar, Apr

– ALASDAIR ASTON, Wake's Cottage, Selborne, Hampshire GU34 3JH.

STICTOPLEURUS PUNCTATONERVOSUS (GOEZE, 1778) (HEM.: RHOPALIDAE) REDISCOVERED IN BRITAIN AND NEW TO ESSEX

J.P. BOWDREY

Colchester Museums, 14, Ryegate Road, Colchester CO1 1YG.

WHILST VACUUM-SAMPLING for invertebrates at the Moors, Colchester (OS grid reference TM 0124) with Nigel Cuming on 17.vii.1997 an unfamiliar heteropteran was taken on dry, sparsely vegetated ground near to the River Colne. On the 23.ix.1997 a second example was aspirated from bare, sandy ground at West Bergholt Heath, West Bergholt, Essex (TL 9527). Both sites are in Vice-County 19 – North Essex.

The specimens were clearly Rhopalids and that from West Bergholt was duly sent to the Essex Heteroptera Recorder, Peter Kirby, for his opinion. He determined it as *Stictopleurus punctatonervosus* (Goeze), apparently the first example of this species to be found in Britain since 1870. A third example was takenat West Mersea (TM 0012) on 30.vii.1998.

Species of the genus *Stictopleurus* are rarely encountered in Britain, there being authenticated British specimens of S. *punctatonervosus* with data, from Charlwood, Surrey (1860, 1869, 1870) and Holm Bush, Sussex (1869) which were examined by Dolling (1978), who also cited records from Kent and Essex (Massee, 1955) which were not supported by specimens. The Essex record, however, was based on a misidentification of *Rhopalus subrufus* collected near Chelmsford in June 1950 by J.H. Flint (Kirby, 1997). It would appear, therefore, that the two 1997 specimens are the first for Essex and the first British examples for over 120 years.

Both of the new Essex sites are dry and sparsely vegetated. The Moors is an area beside the River Colne which has been used in the past for the dumping of industrial waste, including large quantities of casting sand, whilst West Bergholt Heath is a remnant of a formerly more extensive tract of heathland.

The appearance of *S. punctatonervosus* for the first time at two sites within four miles of one another, in the same year, is difficult to explain other than by immigration from the Continent or from an as yet undiscovered population elsewhere in Britain. It is interesting to note that a second species of *Stictopleurus*, *S. abutilon,* has established breeding populations in the south of England in recent years and was recorded as new to Essex in 1996 (Kirby, *op. cit.*).

The author would be interested to hear of any other recent records of *Stictopleurus* species in Britain.

Acknowledgements

The author would like to thank Peter Kirby for identifying *S. punctatonervosus* and for helpful comments and Nigel Cuming and Colchester Natural History Society for the use of the vacuum sampler.

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The 1998 season in my Cambridge garden

The year started with the sighting of a Brimstone *Gonepteryx rhamni* (L.) on 3 April and was followed by regular sightings of Orange-tips *Anthocharis cardamines* (L.) until the end of May. This species breeds regularly in the garden and caterpillars were again noticed this year. From mid-May onwards until mid-September both the smaller whites (*Pieris rapae* (L.) and *P. napi* (L.)) were common, in that at any time of day several were usually present in the garden, with *P. napi* out-numbering *P. rapae* by about 5 to 1 in the early broods, but by late summer they were in equal numbers. The Large White *P. brassicae* (L.) also occurred in small numbers; certainly more numerous than in the past few years but nothing like so common as the smaller *Pieris* species.

The Holly Blues *Celastrina argiolus* (L.) had an excellent season, not only being plentiful in both first and second broods, but a third brood example was noted on 14 October.

At the beginning of September a Red Admiral *Vanessa atalanta* (L.) took possession of my garden, basing itself by the pear tree and several times when I was near this tree I was "buzzed" as I had clearly invaded its territory. From time to time it was seen patrolling or sunning itself either up at the house or on the fence or shed at the bottom of the garden and its territory clearly also took in the neighbour's garden on one side. It was seen several times in October feeding on the orange globe buddleia *Buddleja globosa* which had decided to have a second flowering of the season and was last seen on 11 November when it spent about 30 minutes sunning itself on the shed.

At the bottom of the garden there is a 40 or 50 year old Christmas tree *Picea abies,* now taller than the house and in September either from it, or aphids feeding on it (possibly an *Adelges* species), was dropping a rain of sticky substance onto the mixed vegetation below which became sticky and dirty, including the ivy which envelopes the trunk and is halfway up it. From early September onwards, from dawn to dusk, dull, rain or sunny, warm or cold, there were large numbers of wasps (which I identified from three specimens as *Vespula germanica* (L.) enjoying collecting up this largesse and when it was warmer and sunnier they were joined by a number of Diptera (blowflies and houseflies). The autumn moths did not have a chance to enjoy the ivy blossom as it too was swarming with the wasps. When this blossom was exhausted towards the end of October they turned their attention to the other ivy blossom which was out near the house end of the garden and had come later into flower. The wasp nest was not located, but was not in my garden although shavings from my shed had clearly been used in its construction as wasps had earlier been seen *in flagrante* rasping at the wood and all the little scrapes they made are very

obvious and fresh ones have continued to appear year after year. The autumn wasps came as rather a surprise as they had rarely been seen before September and had been absent from their usual presence on the fennel *Foeniculum vulgare* blossom or the fruit trees. Taking advantage of the ready supply of wasps was a large *Araneus diadematus* Clerck spider which had spun its web on the ivy and was fattening itself up for the winter.

Conspicuous by their scarcity this year were the Vanessids, the *Buddleja davidii* and *B. globosa* blossoms, both in my garden and nearby, being bereft of all but the occasional Peacock *Inachis io* (L.), Small Tortoiseshell *Aglais urticae* (L.), Painted Lady *Cynthia cardui* (L.) or Red Admiral, although they were frequented by all three *Pieris* species and also two or three Meadow Browns *Maniola jurtina* (L.) which I have noticed in the garden in previous years. It would probably be much commoner if our local council did not consider it should keep all verges and open spaces as smooth as the baize on a snooker table. A Comma *Polygonia c-album* (L.) was seen sunning itself on the fence on 3 May and a second on 10 October. Silver Y moths *Autographa gamma* (L.) were as scarce as the Vanessids but a single Clouded Yellow *Colias croceus* (Geoffroy) was noted flying a few hundred yards outside the garden in August.

Also virtually absent this year have been aphids, ladybirds and syrphid flies. These latter have in previous years occurred in large numbers on both the golden rod *Solidago canadensis* and the fennel blossoms. In contrast, however, it has been a good year for leaf-cutting bees (un-identified) which paid particular attention to the *Buddleja* and which several friends and neighbours also complained of and sought my advice on the problem.– BRIAN O.C. GARDINER, 2 Highfield Avenue, Cambridge CB4 2AL.

Further observations on predation of hibernating *Aglais urticae* (Lep.: Nymphalidae) by a Wren

Roy Leverton's note (*Ent. Rec.* **110**: 294) on Wren predation of Small Tortoiseshell butterfly *Aglais urticae*, reminded me of a regular sequence of such predation that I used to observe. For many years I had an old wooden unheated animal shed which had large ventilation slats at regular intervals along each side. The local Wren used to come and go at will through these slats and in fact often roosted overnight in the shed. Every winter a group of eight to fifteen *A. urticae* would gather to hibernate on the underside of the roof at one end of the shed, presumably gaining access through the same ventilation slats. They would remain there unharmed throughout most of the winter. Then, during the hardest frosts of late February, they would all be consumed in a single day – only the brightly coloured wings remained scattered on the floor. Concealment behind thick mats of cobwebs was no protection; all were found. Only a few solitary individuals that had hibernated well away from the main group were sometimes overlooked and survived. Maybe I am being anthropomorphic but I am convinced that the Wren knew the butterflies were there and purposely kept them in storage for lean times.– K.P. BLAND, National Museums of Scotland, Chambers Street, Edinburgh EH1 1JF.

Daldinia concentrica Ces. & de Not. as a foodplant of _Apomyelois bistriatella_ (Hulst) ssp. _subcognata_ Rag. (Lep.:Pyralidae)

Bob Heckford's note (*Ent.Rec.* **110**: 82-83) describes his experiences with *A.bistriatella subcognata* (=*neophanes* Durrant), which he bred from *Daldinia* growing on burnt gorse. This is consistent with the life history descriptions found in the literature – although it has to be said that few of these refer to first hand observations.

Virtually all published material refers to the fungus as *Daldinia concentrica*, in all probability because it is the most obviously recognisable species of this Ascomycete, a taxonomically difficult group. Heckford draws our attention to the fact that the species on burnt gorse (and probably other burnt substrates) is the smaller *Daldinia vernicosa* (Schw.) Ces. & de Not., with *D. concentrica* being restricted to unburned hosts. He further suggests that the larva of *A.bistriatella* is restricted to burnt hosts, and by implication to *Daldinia vernicosa*. The literature, and my own experience would suggest that the moth has a wider habitat and host range.

Meyrick (1928. *A revised handbook of British Lepidoptera*. London.) seems to have been the first to have established the link, describing a putative larva as "... feeding ... on globular black fungus growing on the stems of *Ulex* ..."; Stan Wakely (1935. *Entomologist* **68**:137-138), tracked down a specimen bred in 1917 from *Daldinia*, but "... definitely not growing on *Ulex* ...".

In Denmark, the moth is found in boggy heathland, and has been bred from *Daldinia tuburosa* (Palm, 1986. *Nordeuropas Pyralider*. Danmarks dyreliv Bind 2. Kobenhavn). Emmet (1988. *A field guide to the smaller British Lepidoptera*) cites "*Daldinia concentrica* growing on dead birch, less often on gorse or other plants, especially on burnt stems." The author has taken the moth a number of times at light near Orpington, on chalk. The light trap is some miles distant from any heathland habitat, although *Daldinia* does occur on the odd ash tree locally.

I have bred *A.bistriatella* from *Daldinia concentrica* growing on dead birch on a number of occasions. The habitat is relict acid heathland with heather, gorse and mature stands of birch. Serious fires are rare, and burnt gorse is difficult to find. The birch woodland contains many dead and dying specimens and *Daldinia concentrica* appears to be a secondary coloniser of birch killed by *Polyporus* fungi, and larvae have been found in *Daldinia* growing on erect trunks that have broken two to three meters from the ground. Larvae in this location are very scarce, and in some years it has not been possible to locate a single specimen. There are, however, plenty of beetles as compensation, and I have bred *Biphyllus lunatus* Fab., *Malachius bipustulatus* L., and *Synchita humeralis* Fab. as "by-products"!

There seems to be no doubt that this moth feeds on more than one species of *Daldinia*, and in different habitats, even if the majority of records come from burnt wood.– PAUL SOKOLOFF, 4 Steep Close, Green Street Green, Orpington, Kent BR6 6DS.

BUSH CRICKETS AND THE BURREN, WITH FIRST RECORDS OF *PHOLIDOPTERA GRISEOAPTERA* (DE GEER) (ORTH.: TETTIGONIIDAE)

MARTIN C.D. SPEIGHT

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WHETHER in Ireland on holiday or for other purposes, visiting entomologists almost inevitably manage a few days in the karstic limestone massif of the Burren (Co. Clare). Perhaps they would not consider an encounter with a common and widespread European bush cricket there to be of any note, but, in reality, until now there are no records of any tettigoniid from the Burren.

Ireland's fauna of long-horned grasshoppers and bush crickets is curiously limited. Until the 1970s the only species known from Ireland were two oak woodland species, *Leptophyes punctatissima* (Bosc) and *Meconema thalassinum* (De Geer). Then an isolated colony of *Metrioptera roeselii* (Hagenbach) was discovered, beside a coast road in Waterford, in the south-east of the island (Anderson, 1977). This was followed by the recording of a single population of *Pholidoptera griseoaptera*, from thick bramble scrub in the same part of the country (O'Connor and O'Connor, 1985). A clearly introduced, live individual of *Tettigonia viridissima* (L.) was then recorded from a camp-site in Co. Cork (Good and Cullinane, 1990). Finally, *Conocephalus dorsalis* (Latreille) was added, also apparently from a site somewhere in Co. Cork (Haes and Harding, 1997), though precise details of this last record do not seem to have been published anywhere. Apart from the discovery of a second colony of *P. griseoaptera*, this time in Co. Cork, there have been no additional sightings of these latter four species in Ireland.

During late spring of 1998 I swept nymphs of *Pholidoptera griseoaptera* from a steep, south-west-facing slope of patchily-vegetated limestone pavement dotted with small bushes of *Corylus*, at about 50m altitude on the northern edge of the Burren. Subsequent visits established that the colony extended over a piece of ground no more than c.250 metres long by 30 metres wide. The insects were absurdly easy to find and capture, at all stages of their development – the propensity of this species to dive into impenetrable cover, like bramble, is redundant in this type of vegetation, because there is nowhere to hide.

Having visited many parts of the Burren previously, I was disconcerted to encounter *P. griseoaptera* there for the first time in 1998, particularly since relocating it at that locality subsequently proved to be so easy – on no occasion was I unable to find it again, whether I visited the site in the morning, mid-day or evening, in sunshine or overcast conditions. Indeed, this particular site I am quite familiar with, having visited it on a number of occasions in the past because of its general syrphid interest – its syrphid fauna includes *Cheilosia ahenea* (von Roser), *Microdon mutabilis*(L.) and *Paragus constrictus* Simic, present there in good numbers. If one were to set out to look for *P. griseoaptera* in the Burren, I doubt one would start by investigating this particular locality, because it is, despite its low altitude, rather coo l– a significant proportion of the ground cover is *Dryas* mats and *Calluna*, and the

Dryas continues to flower there long after it has finished seeding over much of the Burren. Putting these various thoughts together with the reality that the site is within 100m of a road left me inclined to believe that someone had introduced *P. griseoaptera* there. This opinion was reinforced when I later had opportunity to search a range of locations scattered round the Burren in mid-July, looking specifically for *Pholidoptera*. During this entirely fruitless search I tried to visit as many localities as possible with a similar mix of vegetation and bare pavement, at more-or-less the same altitude as the *P. griseoaptera* colony.

There are thousands of hectares of patchy *Corylus* scrub intermixed with bare limestone pavement on the Burren, so comprehensive search of the massif for *P. griseoaptera* colonies is logistically out of the question. Nonetheless, it would seem possible, working from first principles, to identify the sorts of site in which its occurrence might be most likely. Similarly, given the fact that the predominant vegetation cover of the Burren is largely uninterrupted over vast surfaces and has supposedly been in place for hundreds, if not thousands, of years, it would seem reasonable to conclude that *Pholidoptera*, if found at one location in the Burren, would quickly prove to be widely distributed there. In other words, if any present-day landscape were to be "permeable" to the species inhabiting it, the Burren would be.

Towards the end of August I had an unexpected, additional visit to the Burren, for the purpose of showing sites of interest to some visiting French and Swiss scientists. One member of the party hurt his ankle, forcing a shorter, more direct return to the cars than had been intended, over ground not previously visited. We were suddenly in the midst of a vast colony of *P. griseoaptera*, which proved to stretch for more than a kilometre over more-or-less flat, south-east facing terrain, at a significantly higher altitude (c. 200m) than the other *P. griseoaptera* colony.

The two locations now known for *P. griseoaptera* in the Burren are not far from one another, being separated by no more than 3km. The second, larger colony, is nearly 1km from any existing road. If these colonies result from introduction by man, this presumably happened long ago, considering the large size of the second colony.

Having tried, unsuccessfully, to find *Pholidoptera* at various locations in the Burren, I was inclined to the view that the species is not widely distributed there. But its discovery at a second site suggests it could occur in discrete, widely separated colonies at up to 200m. Whether or not that proves to be the case, there are other implications to *Pholidoptera* remaining undetected in the Burren until now. *P. griseoaptera* is a large insect and, at least in the Burren, it is not difficult to detect when present. The Orthoptera are not much studied in Ireland – there are insufficient species to make specialising in Orthoptera a particularly rewarding pastime. Localised populations of other unrecorded orthopteran species could thus likewise remain so far undetected. But visiting entomologists could easily dismiss such populations as unworthy of note, being unaware of the limited number of species recorded in Ireland and the low numbers of records of those that are known. It is my hope that this salutary tale might encourage such visitors to keep an eye open for Orthoptera during their peregrinations in Ireland and to ensure that records they

accumulate see the light of day somewhere. Certainly, I would be glad to help with the identification of any apparently anomalous specimens.

Data for the Burren *P. griseoaptera* records are as follows (Irish grid references are followed, in brackets, by 50km, UTM grid references):

Pholidoptera griseoaptera (De Geer), 1773

Clare: 19 August 1998, M3204 (MU3), males and females, limestone pavement with patches of ground vegetation and clumps of low *Corylus*, 200m, coll. and det. M.C.D. Speight, male presented to collections of National Museum of Ireland.

Galway: 22 May 1998, nymphs, 22 July 1998 last instar nymphs, M3405 (NU1), limestone pavement with patches of ground vegetation and clumps of low *Corylus*, 50m., coll. and det. M.C.D. Speight, reared female and nymph presented to collections of National Museum of Ireland.

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Further records of two species of *Oedemera* Olivier (Col.: Oedemeridae) in Kent

The note by Mr A.A. Allen on *Oedemera nobilis* (Scop.) (*Ent. Rec.* **110**: 293) in which he referred to its apparently local distribution within the county was of considerable interest. Being such a "striking and handsome beetle" and one that can instantly be identified in the field my initial recollection was that the species was common and widespread. A perusal of my records, however, revealed only 19 sightings of the beetle between 1979 and 1998 and from 1986 to 1994 there were none whatsoever. The data are: 9.viii.1979 Murston, near Sittingbourne O.S. grid reference TQ 924655 dry fly-ash tip; 12.vi.1983 Murston, near Sittingbourne TQ 921649 derelict industrial grassland and scrub; 7.viii.1983 St. Margaret's at Cliffe, TR 3847 chalk cliff-top grassland; 27.vi.1984 Darland Banks, Gillingham, TQ 793655 open chalk downland; 14.viii.1984 Beltinge Cliff, TR 192685 on flowers of *Daucus carota* L. on coastal clay slopes; 24.viii.1984 Deerton Street, near Teynham, TQ 965628 on flowers of *Daucus carota* L. along roadside verge; 1.viii.1985 Murston, near Sittingbourne TQ 926653; 10.viii.1985 Ham Fen, TR 336550 on flowers of hogweed *Heracleum sphondylium* L.; 28.viii.1985 Upper Luton, Gillingham, TQ 7766 open chalk downland; 10.vii.1994 Burham Down, TQ 7462

open chalk downland; 21.viii.1994 Vinters Park LNR, Maidstone, TQ 7756 on flowers of *Daucus carota* L. in dry grassland; 7.vii.1996 Church Marshes, Milton, TQ 9165 dry coastal grassland; 20.vii.1996 Trosley Country Park, TQ 6461 open chalk downland; 15.vi.1997 Ditton Court Quarry, TQ 7157 on flowers of *Daucus carota* L. in open ragstone quarry; 13.vii.1997 Darland Banks, Gillingham, TQ 7965 open chalk downland; 28.vi.1998 Bredhurst, TQ 79956175 open chalk grassland; 11.vii.1998 "Iden Croft Herbs", Staplehurst, TQ 792424 herb garden and nursery; 25.vii.1998 Wrotham Water Downs, TQ 6260 open chalk downland; 26.vii.1998 Darenth Park, TQ 569724 chalk and flint scrub.

These records suggest that the beetle is characteristic of dry, often calcareous, grassland and thus may be overlooked by entomologists, like myself, who prefer to collect in damp woodland. A similar examination of the records for *Oedemera lurida* (Marsham) (below) which Mr Allen also mentioned, shows that whilst the two species may sometimes be found together, and in similar habitats, the latter also occurs in damper situations – 13.vii.1978 Murston, TQ 920646 coastal grassland; 18.vi.1981 Murston ,TQ 914644 dry derelict industrial grassland and scrub; 7.vi.1983 Murston, TQ 9164 dry derelict industrial grassland and scrub; 10.vi.1984 Canterbury Field Study Centre, TR 158593 margins of pond; 30.vi.1984, Shorne Wood, TQ 684702 open clay pits; 8.vi.1985 Canterbury Field Study Centre, TR 158593 open grassland; 20.vii.1985 Lydden Hill, TR257459 roadside chalk cutting; 31.vii.1985 Old Park, Canterbury, TR 168589 open heathland; 13.viii.1985 Davington, TR 003619 dry grassland; 28.viii.1985 Darland Banks, TQ 7865 open chalk downland; 30.viii.1985 Lydden Hill, TR 257459 roadside chalk cutting; 6.vi.1993 Grain, TQ 8877 dry coastal grassland; 18.vii.1993 Chiddingstone Ponds, TQ 5147 damp clay woodland and scrub; 27.v.1995 Lower Beechen Wood, TQ 516639 margins of ride in chalk woodland; 27.v.1995 Lullingstone Park, TQ 5164 open chalk downland beside golf course; 7.vii.1996 Church Marshes, Milton, TQ 9165 rough coastal grassland; 20.vii.1996 Trosley Country Park, TQ 6461 open chalk downland; 31.vii.1996 Leeds TQ 825527 scrubby margins of arable field; 14.v.1997 Denge Wood, TR 106528 open chalk grassland; 19.v.1997 Hargate Forest, TQ 5737 open ride in clay woodland; 26.v.1997 Foal Hurst Wood, TQ 6644 margins of copse; 1.vi.1997 Mereworth Woods, TQ 644556 clearing within mixed deciduous woodland; 15.vi.1997 Ditton Court Quarry, TQ 7157 open ragstone quarry; 29.vi.1997 "Bapchild Fruit Stall", TQ 92656310 margin of arable field; 13.vii.1997 Darland Banks, TQ 7965 open chalk downland; 3.vii.1997 - 7.viii.1997 House Fleet, Grain Oil Refinery, TQ 87957505 in water trap set up in derelict coastal grassland; 14.vi.1998 Snarkhurst Wood, Bearsted, TQ 8255 clearing in damp wood on Gault clay; 20.vi.1998 Brokes Wood, TQ 59254225 scrub bordering damp woodland; 20.vi.1998 Walnut Tree Cottage, Lympne, TR 12253540 identified from a photograph taken by Mrs P. Allen in a cottage garden; 25.vii.1998 Wrotham Water Downs TQ 6260 open chalk downland; 26.vii.1998 Darenth Park, TQ 569724 chalk and flint scrub; 1.viii.1998 Seasalter Village Green TR 079650 on flowers of *Daucus carota* L. on coastal shingle.

Considering that both these species can easily be identified without recourse to capture and detailed examination I would suggest that any apparent rarity is simply due to the failure of interested parties reporting their finds in the literature or to a centralised recording scheme officer whether deliberately, unintentionally or through ignorance.– LAURENCE CLEMONS, 14, St. John's Avenue, Sittingbourne, Kent ME10 4NE.

Collecting notes 1998

Preferring an uncertain future to one certain to be bad, I parted company with my employer of the last twenty-odd years in early 1998. I vowed to rekindle my interest in beetles and to become more specialised in my collecting by focusing my efforts on the Noctuidae and Carabidae. How successful I was in carrying out these resolutions is best judged by the reader!

Collecting began with a holiday at Millook in north Cornwall from 5 to 12 April. My diary records that on 6 April, I was sitting in warm sunshine watching *Gonepteryx rhamni* L., *Inachis io* L. and freshly emerged specimens of *Pararge aegaria* L., *Celastrina argiolus* L. and *Anthocaris cardamines* L. On the following day the daytime temperature plunged to 4°C, rain fell and snow appeared on the hills of distant Dartmoor! In the first part of the week, I recorded 22 species of macromoth including early examples of *Agrotis ipsilon* Hufn. and *Colocasia coryli* L.

A single *Vanessa atalanta* L. appeared in my garden on 2 May and the warm sunshine of 4 May tempted me out to Steart Common on the Somerset coast to hunt Carabids on the flat sea turf and amongst the reeds. Only common species turned up, including *Bembidion minimum* F., *B. iricolor* Bedel and *Demetrias imperialis* Germ., the last being a new species for me. My wife Katherine was at home for the week which we spent hunting Carabids and antiques from the Dorset coast in the east to Porlock, Somerset in the west! The resultant haul (30 species), although mainly commoners, did allow me to practice both setting and the use of those awful keys written in an exotic and ancient language understood only by Coleopterists! The list includes little of note but I did eventually find the mainly northern *Pterostichus aethiops* Panz. on the Quantock Hills.

On 22 May I drove up to Birmingham to join my old friend Richard Clinton and his brother-in-law for our trip to Hungary. We arrived at Balatonfüzfő on the shore of Lake Balaton at 5.30pm the next day after a long, fortunately uneventful, drive. We spent the next two weeks hunting butterflies, beetles and birds in the hills of the Bakony which surround Balatonfüzfő with a couple of trips further afield to the Vertes region and the flat plain or "puszta" near Apaj.

The Bakony held extensive flat areas of limestone grassland and scrub formerly used as military training grounds – presumably by the Red Army. Now abandoned, these areas are home to large populations of butterflies. *Plebejus argus* L. swarmed around muddy puddles whilst *Euphydryas aurinia* Rott., *Melitaea cinxia* L., *M. athalia* Rott. and *Cyaniris semiargus* Rott. flew in large numbers over the short turf. *Maculinea arion* L. was out, but past its best. *Satyrium pruni* L. flew around clumps of Blackthorn bushes. Butterfly species new to me were *Parnassius mnemosyne* L.,

Melitaea trivia D.&S. and *Erbia medusa* D.&S. The latter species was common in the Vertes region where I also found a single *Hypodryas maturna* L. and an Imperial Eagle. This was, so my companions told me, the ornithological highlight of the trip. They were not aware that I had actually scared the bird into flight whilst single-mindedly pursuing a miserable little Lycaenid at full speed over the crest of a low limestone hill! Perhaps it would be better if they never learned the truth!

Moths were few and far between in the reeds surrounding Lake Balaton. This is difficult to explain as the swamps looked very promising. We obtained a series of *Phragmataecia castaneae* Hb. and a female of the Geometer *Ascotis selenaria* D.&S. from which Richard later reared a large brood. I set some 350 beetles from Hungary of which 150 were Carabids. The Bakony woods were rich in Cerambycids and I have to admit that my resolve to specialise soon faltered! Some of the Carabids were easily recognised, such as *Omophron limbatum* Fab., *Agonum sexpunctatum* L. and *Brachinus crepitans* L. but most await identification. Although we did not see as much of Hungary as we had planned, the trip was a memorable success. The people were very friendly and the excellent food and drink was very cheap – perhaps this explains why we did so little moth trapping after dinner!

For most of June the weather was wet and cool. Warm sunshine on 21 June tempted us out to East Quantoxhead, on the Somerset coast, where a single *Colias croceus* Geoff. was noted. We left for Haute Savoie in the northern Alps of France on 3 July. We stayed in a large, traditional, timber-built "chalet" style farmhouse in the small village of Entremont. I ran the trap each night and took a number of interesting Noctuids including *Euchalcia variabilis* Pill., *Pachetra sagittigera* Hufn., *Autographa bractea* D.&S. and *Trisateles emortualis* D.&S. The latter could easily be overlooked in a full trap as it resembles a small, faded Emerald! Other moths included *Dendrolimus pini* L. and the smaller Lasiocampid *Cosmotriche lunigera* Esp. whose larvae feed on spruce.

We took full advantage of the numerous ski lifts to explore the tops of the local mountains, including the spectacular Mont Blanc. The latter, though, was thoroughly spoiled by the hoards of tourists to whom the phrase "orderly queue" meant absolutely nothing! Far more enjoyable was the small rack-and-pinion train which climbs from La Fayet to the Nid d'Aigle at 2400m. On the steep slopes overlooking the impressive Bionassay Glacier I netted, after much careful stalking, a few specimens of *Pontia callidice* Hb. and *Erebia pandrose* Bork.

Nearer home I found a colony of *Boloria aquilornis* Stichel inhabiting a small acid bog hidden by conifers on the Plateau des Glieres. Butterflies abounded on the damp flushes on the slopes overlooking the hamlet of La Douche. Here, for the benefit of the onlookers, I performed a perfect flying somersault whilst in pursuit of the beautiful *Colias phicomone* Esp. over some particularly rocky ground! A ski lift to near the top of L'Etale at La Clusaz produced *Boloria pales* D.&S. and *Albulina orbitulus* de Prun. A walk from the lift at Beauregard (also near La Clusaz) produced *Maculinea telejus* Bergs. in a small colony on damp ground at about 1500m.

Confidence in identifying *Erebia* by comparison with plates in books is not acquired with age as I once hoped! In fact, the reverse is true in my case and I have prepared slides of the genitalia for most of the species taken in Haute Savoie. The resultant list is as follows: *Erebia ligea* L., *E. euryale* Esp., *E. pharte* Hb., *E. alberganus* de Prun., *E. pluto* de Prun., *E. ? cassioides* Hohen., *E. pronoe* Esp., *E. oeme* Hb., *E. pandrose* Bork. *E. pluto* was only found, thanks to the ski lift, at the top of Mont Lachat de Chatillon (2050m). It was difficult to catch as it flew fast and low over the unstable screes. *E. alberganus* was by far the commonest species in the region. The *E. ? cassioides* from the Col de la Colombiere may well be *E. tyndarus* as both genitalia and wing markings were of little help in reaching a confident identification.

During the week following our return to Somerset I added three macro-moths to my garden list. These were *Acronicta aceris* L., *Celaena leucostigma* Hb. and *Cleorodes lichenaria* Hufn. The first rarer migrant, *Helicoverpa armigera* Hb. arrived on 30 July. A female *Orthonama obstipata* Hb. was the first of five specimens of this little migrant. I obtained eggs from this specimen. As I write (26 January 1999) the fifth generation of captive-bred larvae are hatching in a fish tank on the kitchen windowsill. Despite my telling her of the moth's rarity and beauty, Katharine still refers to them as "the vermin" because of their prolific breeding and frequent escapes into her kitchen! A second *H. armigera* on 15 August was followed by a single male *Rhodometra sacraria* L. on 20 August. Two final additions to the garden list were *Cyclophora annularia* Fab. and, at last, *Mormo maura* L.

Beetle hunting continued during the summer – I set over 80 from Haute Savoie – all of which were Carabids (and all are still awaiting identification!). In Somerset, a visit to the windswept Pawlett Hams near Bridgwater produced *Harpalus obscurus* Fab. and, at 4.8mm, the largest *Bembidion quadrimaculatum* L. to date! Open ground on the shore of Clatworthy Reservoir was home to *Chlaenius vestitutus* Payk. and *C. nigricornis* Fab. amongst others.

On 28 August we began a week-long holiday at Castle Gotha farm near St. Austell in Cornwall. A few *C. croceus* were flying over the surrounding fields. Despite cool nights, there were plenty of moths at the trap and I have never seen *Cosmorhoe ocellata* L. in such numbers. A warmer night on 2 September brought in the migrants including single specimens of *R. sacraria* and *O. obstipata,* three *Mythimna unipuncta* Haw. and two *Spodoptera exigua* Hb.

The end of the 1998 season found me, on 28 December, collecting flood refuse from the banks of the swollen River Tone. This produced far more beetles than even I could set and so, true to my earlier resolution, I set only the Carabids and preserved the rest in alcohol! This refuse added *Metabletus obscuroguttatus* Dufts., *Trechus quadristriatus* Schk., *Bembidion lunulatum* Geoff-Fourc., *B. aeneum* Germ. and *B. guttula* Fab. to the '98 list. Although the weather of the 1998 season was generally miserable my newly found freedom combined with excellent holidays to produce lasting memories to equal those of the very best seasons!– M.D. BRYAN, Extons, Taunton Road, Bishops Lydeard, Somerset TA4 3LR.

Hazards of butterfly collecting – the finest bridge in Afghanistan – 1977

It was time to leave Afghanistan, on my first and only visit there in 1977. We had been evaluating the activities of the Afghan Family Guidance Association, which had done much to make the concept of family planning respectable. I was having dinner with Alan Ramsay, a British diplomat, who had done substantial butterfly collecting all over the country. We broke up early. He was driving to Kandahar early next morning and my flight to New Delhi was at 07.00. But on arrival at my hotel I found a crude mimeograph which, in effect, said that Ariana Afghan Airlines had lost track of their only Boeing 727, and that it would certainly not leave till Monday. Ariana was never a model of punctuality!

I called Alan: What can I do on a Sunday in Kabul? It was soon arranged that his wife would run me down to Paghman, just outside Kabul, and show me a very good path up the mountains. If you are really energetic, you can even reach *Parnassius* country. By coincidence my British colleague and I had also been invited to a family picnic at Paghman by an Afghan friend. I told my colleague that I would join after collecting and she promised to do the needful diplomacy to avoid my causing offence.

Mrs Ramsay duly picked me up Sunday morning and deposited me at the other end of Paghman and showed me a rather daunting looking track. Paghman was a beautiful place in those days. Beautifully tended square fields of vegetables and alfalfa, among which stood three and four-storied mud buildings, almost as wondrous of those in Yemen. There has been so much fighting at Paghman since 1979 that I am sure little of this idyll remains.

I had a great day – I caught about 50 species, most of them new to me. It is always amazing how many species live on what from a distance looks like a desert. This is the same from the high Lebanon and Turkey, through Iran and Kurdistan, to Afghanistan and the inner ranges of the Himalaya. Little creeks, bordered by water-mint, are real jack-pots. A 500m stretch of such a creek can provide a whole day of productive work. And though I did not reach *Parnassius* country, I did walk enough to see the fauna gradually changing towards the montane.

At 13.00 I started my descent, rather faster than the five hours going up. I could not afford to miss the tail-end of the picnic. I arrived back in Paghman at 15.30. It was not difficult to find the picnic location. This was the concept of the extended family picnic gone wild. There were about 100 people, ranging in age from two months to 98 years, all of whom had to be greeted. Scraps of everything that had been served during the day were lovingly conserved for me, and when pointing out how high I had been up the mountain, it was deemed appropriate that so much food had been saved. Pretty soon I sat behind a varied mountain of food, all delectable, with each of the cooks making absolutely sure that I tasted HER food.

Next to me a bridge game was in session, elderly men speaking French, which used to be the language of the élite. Vous jouez au bridge?. Well, yes, more or less ... and soon I was partner to a gentleman who turned out to be the current bridge champion of Afghanistan. One heart ... I had 11 points and very good clubs ... two or three clubs? OK, three clubs, and bang – six hearts (we made only five). While sitting dummy I noted that the Walnut Blue *Chaetoprocta odata* was immensely common,

a new record for Afghanistan. The next 45 minutes saw me through some of the most giddying bridge in which I have ever participated – in the deep shade of a walnut tree surrounded by mud skyscrapers. It was a truly incongruous occasion; hardly a deal that someone did not bid to game. Just before 17.00 I bid and won seven diamonds doubled; I was fairly pleased, but my partner just remarked: Why didn't you redouble. Since at least half the bids had gloriously failed, I thought this a bit rough. But it was great fun, and strings of Walnut Blues were still chasing each other among the trees.

Back at the hotel there was another mimeograph. Ariana had found their 727; we would leave for Delhi at dawn. It had been a family planning mission; I suspect that today the Taliban are not really interested. But I did get enough data to do a paper on Afghan butterflies that can be found in this very journal (1978. Butterflies of Afghanistan. *Ent. Rec. J. Var.*, **90**:191-198). That may be all that survives from this particular mission.– TORBEN B. LARSEN, 5 Wilson Compound, 2811 Park Avenue, Pasay City, Metro-Manila, The Philippines.

Swallowtail *Papilio machaon* L. (Lep.: Papilionidae) found dead in Bentley Wood, Wiltshire

A specimen of the Swallowtail butterfly *Papilio machaon* was found dead in Bentley Wood, Wiltshire, at 20.00 hours on 20.viii.1996. The specimen was spotted in the middle of a ride by David J. Jones of Chichester and photographed *in situ*. Examination revealed that it was desiccated and missing three legs and part of the left hind wing. The specimen was passed to me for setting when its size and form identified it as a female of the European subspecies *P. m. gorganus* Fruhstorfer (= *bigeneratus* Verity). The point at which the specimen was found is situated in a section of ride corresponding to sections 4-5 of the "Bentley Transect" between two blocks of the wood designated "Bentley" and "Barnridge" (Waring, 1984. *A survey of the butterflies and moths of Bentley Wood, Wiltshire*. Unpublished, Forestry Commission & Nature Conservancy Council). The find was reported to Dr Patricia Woodruffe, Bentley Wood trustee, and the specimen returned to the finder.

P. m. gorganus is an occasional vagrant from Europe which sometimes manages to breed in Britain (Emmet & Heath, 1990. *The Moths and Butterflies of Great Britain and Ireland*.**7** (1), Harley Books, Colchester). The Bentley Wood complex is renowned for its Lepidoptera (Fox & Waring, *Ent. Gaz.* in press) including a reliable historic record of immigrant *P. m. gorganus* (de Worms, 1962. *The Macro-lepidoptera of Wiltshire*, Wiltshire Archeological and Natural History Society), and supports two of the food plants used by the subspecies in Britain (Waring, *op. cit.*; Emmet & Heath, *op. cit.*). However the dried condition of the present specimen make it extremely unlikely to have been a natural arrival as it must have been dead for some time, and detachment of legs is common in stored, papered material. An entry in the visitors' book at the information hut near to where it was found, indicated that there had earlier that day been a field meeting of the Devonshire branch of Butterfly Conservation. Since it is difficult to understand why such a large and distinctive butterfly should then have been overlooked, it is more likely that someone took it to Bentley Wood and deposited there.– L. WINOKUR, 8 Parklands Close, Chandlers Ford, Eastleigh, Hampshire SO53 2EQ.

Dryas julia (Fabr.) (Lep.: Nymphalidae:Heliconiinae) in West Sussex

On 17.viii.1998 a freshly dead specimen of the bright orange Heliconiine butterfly *Dryas julia*, a native of Central America, was brought to me by a neighbour, Mr Mark Varvill. He had found it in his conservatory, and he was sure that it was not there on the previous day. It was in good condition apart from a small piece missing from the left forewing. A resident in West Wittering, Mr L. Quinton, subsequently mentioned to me that he had also seen a large orange butterfly in his garden during last summer which he did not recognise.

Emmett *et al.* 1990 (*Moths & Butterflies of Great Britain and Ireland*, **7**: 182) report that the Jamaican subspecies *delila* (Fabr.) of this species was captured in a fruiterers shop in Rotherhithe, East London "probably imported among bananas in the pupal stage", in 1936 and this appears to be the only previous British record. I contacted the nearby butterfly farm at Earnley, only about five miles away (as the butterfly flies!) who do keep this species, and I was told that it was possible that there could have been escapes (Priddle, *pers. comm.*). Although Mr and Mrs Varvil had returned from Dominica earlier in the year, I think that the most likely source must be the butterfly farm. The foodplants are many species of Passion-flower *Passiflora*, but it seems unlikely that the butterfly would breed in this country. The specimen has been lodged at the Department of Entomology, Natural History Museum, London.– CHARLES DEWHURST, Ellanore House, West Wittering, near Chichester, West Sussex PO20 8AN.

Atomaria scutellaris Motschulsky (Col.: Cryptophagidae) at Porthcawl, Glamorgan

On a sunny afternoon during a weekend visit to Porthcawl on 1.iii.1997 a walk along the sea front brought me to an open area of mown grass between the road and the shore known as "The Green". Near its edge, where it drops some two or three metres to a rocky shoreline, were several flat stones. Turning these over revealed a number of beetles. One of these was a species of *Atomaria* which was unfamiliar to me. Later dissection showed it to be a male whose aedeagus appeared most similar to that of *A. scutellaris* Motschulsky figured by Sjöberg (1947, *Entom. Tidskr.*, **68**: fig. 45). Reference to Johnson (1993, *Provisional Atlas of Cryptophagidae – Atomariinae (Coleoptera) of Britain and Ireland,* I.T.E., Huntingdon, map 47) showed this species to have a distribution confined to two separate areas; a south-western group encompassing the Channel Islands, Scilly Isles and the extreme tip of Cornwall; and a southern group along the Sussex coast but also extending inland to Surrey. I sent the specimen to Colin Johnson who confirmed my provisional determination and commented that he was unaware of any other records from further north up the south-west peninsula. This would, therefore, appear to be the first record of *Atomaria scutellaris* from Wales.

The most numerous species of beetle taken with *A. scutellata* was the histerid *Kissiter minimus* (Aubé). Other more cosmopolitan Coleoptera present were *Amara aenea* (Deg.), *Harpalus affinis* (Schr.). *Tachyporus hypnorum* (F.), *T. pusullus* Gr., *Oxypoda brachyptera* (Steph.), and larval *Lagria hirta* (L.).– R. COLIN WELCH, The Mathom House, Hemington, nr. Oundle, Peterborough PE8 5QJ.

FURTHER GALL (INSECTA & ACARI) RECORDS FROM THE ISLE OF MAN

J.P. O'CONNOR AND M.A. O'CONNOR

National Museum of Ireland, Kildare Street, Dublin 2, Ireland.

O'CONNOR (1996) reported a number of galls new to the Isle of Man. Previous literature on the Manx gall fauna is cited in that work. During a recent visit (29 June to 6 July 1998), the authors collected several species new to the island. These are reported here and are indicated by * in the text. In addition, the known distributions of other species were greatly extended and this information is also included. The material was determined using Docters van Leeuwen (1982), Stubbs (1986), Redfern & Askew (1992) and Dauphin & Aniotsbehère (1993, 1994). The common names are from Spooner & Delarge (1993).

Insecta

HEMIPTERA

**Prociphilus xylostei* (DeGeer). Ballaugh Curraghs (SC3695), 1 July 1998, abundant on a honeysuckle *Lonicera periclymenum* L. Despite an intensive search in the area, no other infested plants were found.

Psyllopsis fraxini (L.). Ballaugh Curraghs (SC3695), 1 July 1998, abundant on ash *Fraxinus excelsior* L.; Laxey Wheel (SC4385), 3 July 1998, abundant on ash. Previously only known from Ballaglass Glen and Tynwald (O'Connor, 1996).

DIPTERA

Chirosia betuleti (Ringdahl). Glen Helen (SC2984), 30 June 1998, abundant on lady ferns *Athyrium filix-femina* (L.) Roth. This is the first record from the west of the island, the species being only previously known from Ballaglass Glen and Laxey Wheel (O'Connor, 1996).

**Contarinia tiliarum* (Kieffer). Douglas (SC3978), 5 July 1998, scarce on a lime *Tilia* at the Onchan Pleasure Park. Popularly known as the lime leaf-petiole gall.

D. pustulans (Rubsaamen). Ballaugh Curraghs (SC3695), 1 July 1998, scarce on meadowsweet *Filipendula ulmaria* (L.) Maxim. This is the first record from the north of the island, the species only being previously known from Port Erin in the south (O'Connor, 1996).

**D. violae* (Löw). Laxey Wheel (SC4385), 3 July 1998, scarce on field pansy *Viola arvensis* Murray. The host is locally frequent in the Northern Hills and the narrow, especially moist lowland strip to the east (Allen, 1984).

**Wachtliella rosarum* (Hardy). Port e Vullen (SC4792), 5 July 1998, abundant on a rose *Rosa* in a hedgerow.

HYMENOPTERA

Andricus curvator Hartig. Douglas (SC3978), 5 July 1998, curved leaf galls abundant on an oak *Quercus* at the Onchan Pleasure Park; Laxey (SC4383), 3 July 1998, curved leaf galls abundant on an oak at the railway station. The species was previously only known from Tholt-e-Will Glen (O'Connor, 1996).

A. fecundator (Hartig). Douglas (SC3978), 5 July 1998, hop or artichoke galls abundant on an oak at the Onchan Pleasure Park. Previously known from Glen Tramman and Santon Gorge (Garrad, 1976).

A. quercuscorticis (L.). Douglas (SC3978), 5 July 1998, bark galls scarce on an oak at the Onchan Pleasure Park. The specimens were arranged around a stump left when a branch had been cut off. Previously only known from The Raggatt (O'Connor, 1996).

Phanacris hypochaeridis (Kieffer). Port Erin (SC1969), 2 July 1998, scarce on cats ear *Hypochaeris radicata* L. beside a coastal foot-path. Previously only known from Andreas, Chasms and Creglea (Garrad, 1976).

Acari

ERIOPHYOIDEA

**Eriophyes calycophthirus* Nalepa. Laxey (SC4383), 3 July 1998, abundant on a birch *Betula* at the railway station.

Eriophyes iteinus Nalepa. Ballaugh Curraghs (SC3695), 1 July 1998, abundant on *Salix*. This is the first record from the west, the species being only previously known from near Ballaglass Glen in the east (O'Connor, 1996).

Phyllocoptes goniothorax (Nalepa). Port e Vullen (SC4792), 5 July 1998, scarce on a hawthorn *Crataegus monogyna* Jacq. in a hedgerow. Known as the concealed erineum, this gall was previously known from Ballaglass Glen and Tynwald.

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BOOK REVIEWS

Hoverflies of Surrey by **Roger K. A. Morris**. 244 pages, many distribution maps, 16 colour plates. 220 x 155 mm, hardbound, ISBN 0 9526065 3 4. Published by the Surrey Wildlife Trust, School Lane, Pirbright, Woking, GU24 0JN at £15 plus £2.70 UK postage and packing.

This is the first ever detailed account of hoverflies in Surrey and it provides a tetrad distribution map for each recorded species as well as detailed species accounts which also include extensive lists of flower visit records. The species accounts are also linked to Biodiversity planning and conservation notes are provided. A particularly useful feature is that the background to the distribution maps indicates the principal geological boundaries so that, for example, it is possible in many cases to understand the restricted distributions of several species.

Being from "up north" the geographical positions and geology of the southern counties are not my strong suit and Surrey, to me, has always been merely a place one gets close to on trips to London. With this book from Roger Morris all of that has changed, however, and I now feel that I have a reasonable understanding of the hoverflies and the influencing geological features of Surrey and may even feel moved to go there at some stage! Well bound, with an attractive dust-jacket, the book contains a writing style which is clear and concise and which leads the reader directly to the "meat" of the work. The information contained within the pages has clearly been well-researched over the thirteen years it took to gather the data, resulting in a publication which is as accurate as it is comprehensive, yet still concise, to the point and always interesting.

The publishers aspirations that this work may become a benchmark for other county recording schemes will surely be realised. The book is the fourth in a series which now covers butterflies, larger moths and dragonflies in addition to the hoverflies, all produced by the Surrey Atlas Project and published by the Surrey Wildlife Trust. I look forward with eager anticipation to the next in the series.

Lance Gorman

Unfinished Business: a supplement to the Lepidoptera of the Orkney Islands by **R.I. Lorimer**. 78 pages, one colour plate. A5 paperback. ISBN 0 86096 026 9. Published by Hedera Press and distributed by E.W. Classey. £15.

Ian Lorimer, the author of this book, died in 1994. He was one of the principal authors for the noctuids in *Moths and Butterflies of Great Britain and Ireland* (Harley Books) and also the captor of the only British specimen of *Caradrina flavirena* Guenée, given the vernacular name of Lorimer's Rustic in his honour. However, during visits to Orkney accompanying his wife Daphne, an archaeologist of some note, Ian began a study of the Lepidoptera of the islands, which was to become his principal interest. Virtually all that was known prior to Ian's work came from the occasional visits of collectors hoping to find some of the unusual forms previously discovered in Shetland. These visits soon stopped once it was realised that the Orcadian moths were not as distinctive as those found further north. Ian, therefore, had the rare pleasure of being a biologist in Britain in the latter part of this century who was breaking relatively new ground.

Ian published his initial results in 1983 (*The Lepidoptera of the Orkney Islands* E.W. Classey) but Ian and Daphne retired and moved to Orkney soon afterwards, allowing more time to be devoted to the study. As he became less mobile in his later years it was Ian's intention to update, revise and expand on his earlier work. Unfortunately, this task was never finished, but enough of the manuscript was extant for his long-time colleague Eric Classey to put out this poignantly titled volume.

Inevitably, the volume is a little bit of a hotch-potch as it was never finished as the author intended. It is certainly a little odd to see the index to the first part appearing in the centre of the book, followed by further text. The book itself includes a summary of the first supplement to Ian's original book, which appeared in the *Entomologist's Gazette* in 1988, followed by further additions, addenda and corrigenda for the Orkney list. This is followed by a chapter on collecting methods, a short (and I suspect unfinished) chapter on future work and a chapter on moths found in northern Scotland which have not been recorded in Orkney. This last section has a short appendix by Martin Corley discussing further microlepidoptera covered in *MBGBI* volume 3, which was not available to Ian. The short section on fieldwork is one I'm sure most people can learn from and I will certainly be using one tip – a plastic snake keeps hungry Wrens *Troglodytes troglodytes* and other birds out of a light-trap, even in islands where the birds have never seen snakes!

I know Ian also intended to write an appraisal of Lepidoptera migration in the north of Britain and this missing section is a great loss. Despite his reputation, Ian experienced difficulty convincing some southern Lepidopterists of the extent of immigration to Orkney, particularly in deciding which species were involved. A discussion of migration in northern Scotland from someone of Ian's experience would have been highly illuminating.

The price of £15 for just over 70 pages may seem rather steep, but this presumably reflects the fact that the book is inevitably going to have a limited readership. The need for cross-reference between the sections of this book and Ian's earlier volume may suggest that a complete revision of the Orkney list would have been more appropriate, but this is too large a task to have been attempted without Ian's assistance at least. However, anyone with an interest in islands or the migration of Lepidoptera will find something of interest, while for those who knew Ian it is a lasting reminder of how much more he could have told us if he was still around to ask.

Mike Pennington

Checklists of insects of the British Isles (New Series) Part 1: Diptera (incorporating a List of Irish Diptera) edited by **Peter J. Chandler**. *Handbk Ident. Br. Insects* **12**: xx + 234 pp. 296 x 209 mm, softbound, ISBN 0 901546 82 8. Royal Entomological Society, 1998. £21.00 + postage & packing.

The last check list of British Diptera (with Siphonaptera) was published in 1976 and is seriously outdated. This new list, of Diptera alone, is in a different format and has a much larger content, making it much more comprehensive although more cumbersome. It is in A4 format in double columns, with annotations for many species and an index to genera and species. The earlier list (Kloet & Hincks, 1976) had no annotations and the index did not include species. There has been a great increase in the number of species of Diptera recorded from the British Isles in recent decades: the first Kloet & Hincks (1945) included 5218 species, Kloet & Hincks (1976) 5997 species and the present volume 6668 species. A total of 2832 species known to occur in Ireland are indicated by +.

There is a comprehensive introductory section with a history of British check lists and numbers of species in each family. Some of the problems of nomenclature are discussed and there is a very useful discussion of the problems of gender of scientific names. In the body of the check list there is an introduction for each family explaining the recent taxonomic changes and the state of the classification. Where changes have been made since the last list there is an annotation against the name giving the reason for the change, a reference or the number of a note. This detail is particularly important in Diptera since many species have changed both genus and species names: any curator working on Chironomidae or Tachinidae, for example, will find it much easier to locate species in old collections or find the correct current name. The 1976 check list did not indicate the reasons for all the changes since previous lists. Most of these are given as annotations against the species name in this check list. The notes indicate where there is a problem which requires further work. All names which have been used in British literature have been included. The check list includes species known to occur in the British Isles but not yet brought forward in the literature and also indicates where there are undescribed species. At the end of each family there are the details for each note and the full references. The classification below the family level is relatively conservative and where there is dispute over subfamilies they are omitted and the genera arranged alphabetically (e.g. Syrphidae).

Many of the changes since 1976 were first proposed in the Palaearctic Catalogue, published in thirteen volumes from 1984 to 1993. However the Catalogue contained many errors and omissions and the present check list required extensive checking by the 48 specialists and advisors, including the writer. It is not free of errors: a notable one is the omission of the genus *Leptogaster* (p. 79) and there are mis-numbered notes as Note 27 on Syrphidae, which is in the body of the list as Note 26 but refers to Note 27 of the Notes, while the text of Note 26 is upon a different subject and is not included in the body of the list. There are some wrong page references in the index. These errors are minor considering the size and complexity of the volume. The check list is an excellent production and will be immensely useful to dipterists and other entomologists. It sets a high standard for the following volumes of the check list and Peter Chandler is to be congratulated for his editorial work.

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John W. Ismay

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ENTOMOLOGIST'S RECORD – THE CURRENT POSITION

We are pleased to be in the position of having caught up with the previous backlog of papers and notes on British Lepidoptera (although we still have a small delay in publishing larger papers on other orders of British insects). Accordingly we can now offer rapid publication of suitable material – both short notes and larger papers – on British species of moths and butterflies. **Notes** submitted within a month of an issue appearing have a very high probability of being included in the next issue (especially if sent on disk or via e-mail, although this is not a condition) whilst **papers** (which require time to be refereed before acceptance) could currently be published in the second or third issue following receipt. Readers are therefore urged to take advantage of this opportunity and contribute articles on their discoveries before the field season really gets under way. The clearance of the Lepidoptera backlog now means that we can in particular entertain the idea of publishing follow-up notes on articles which appeared in the issue immediately preceding – something which several readers who completed the *Reader Survey Questionnaire* suggested they would like to see as an improvement. This journal has traditionally been the place where important observations are placed on permanent record – a fact reflected in our title – and I hope that readers will take advantage of this new opportunity. Notes on new county records, previously unreported larval food plants and on seasonally unusual appearances of moths are particularly encouraged as are those which report interesting behaviour. The editor will be pleased to discuss the worthiness of observations with first-time authors if they care to telephone him.

THE ENTOMOLOGIST'S RECORD
AND JOURNAL OF VARIATION
(Founded by J.W. TUTT on 15th April 1890)

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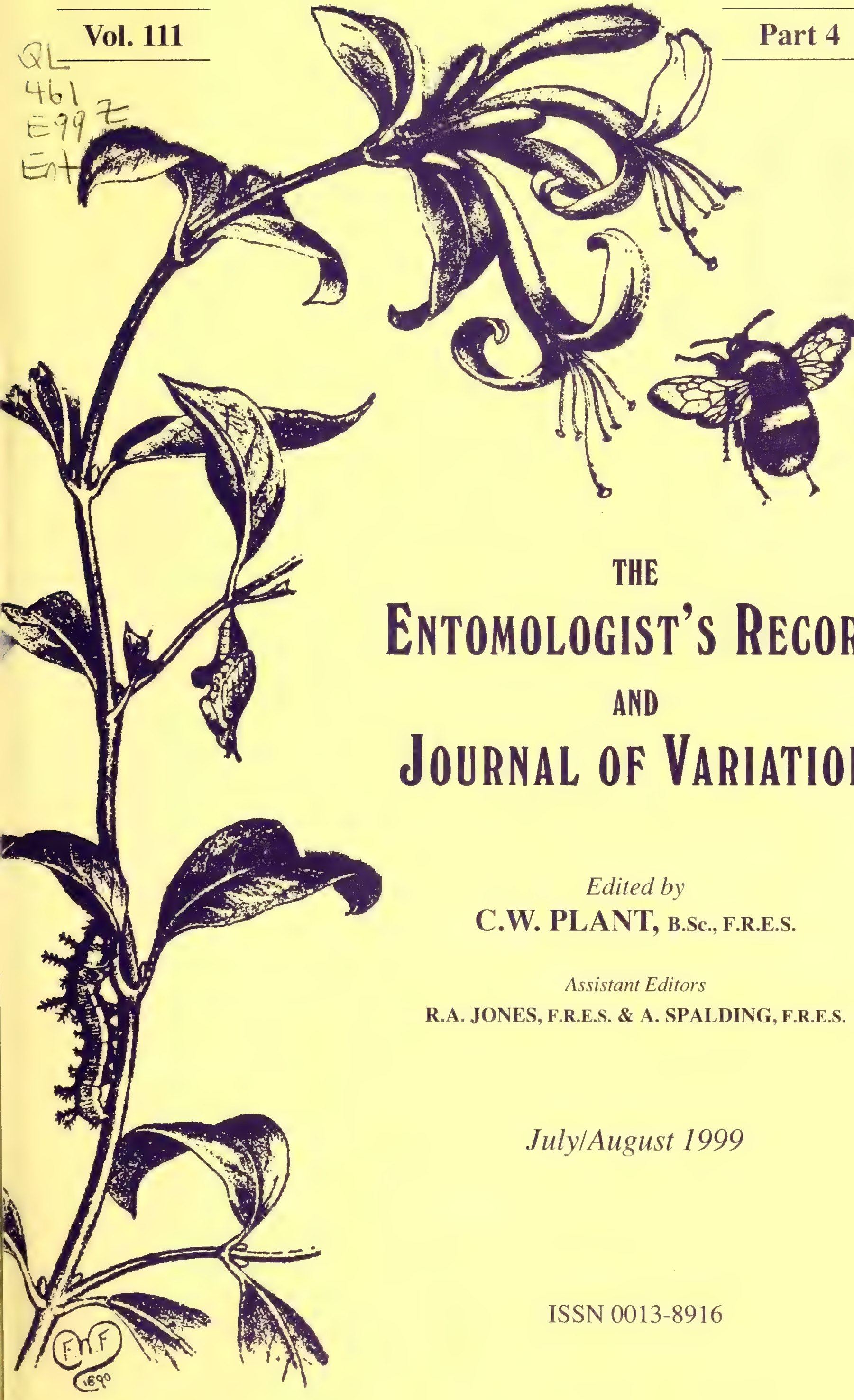

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The preferred method of submission is by e-mail or on floppy disk – even for very short articles. However, we acknowledge that these facilities are not available to everyone and we also accept typed or neatly hand-written manuscripts.

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All authors should refer to this issue as a guide, particularly with regard to the format of dates, lists of references and lists of species. Names of British Lepidoptera should follow Bradley, J.D. (1998. *A checklist of Lepidoptera recorded from the British Isles*) and authors of species names should be given at the first mention. A full list of instructions may be obtained by sending a stamped addressed envelope marked "Ent. Rec. Guidelines" to the Editor.

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THE IMMIGRATION OF LEPIDOPTERA TO THE BRITISH ISLES IN 1996

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[1] *5 Rawlins Close, South Croydon, Surrey CR2 8JS.*

[2] *Butterfly Conservation, UK Conservation Office, Box 444, Wareham, Dorset BH20 5YA.*

THE MARKED INCREASE of immigrant species noted in the previous year continued in 1996 with most of the regular visitors such as Red Admiral *Vanessa atalanta* (Linnaeus), Silver Y *Autographa gamma* (Linnaeus), *Udea ferrugalis* (Hübner) and *Nomophila noctuella* ([Denis & Schiffermüller]) being especially abundant. However, the most prolific species was the Painted Lady *Vanessa cardui* (Linnaeus) with record numbers beineg reported throughout the British Isles. The first influx of primary immigrants appeared in early June and it is believed followed by other sporadic invasions until the late summer which no doubt mingled with home bred stock.

Less common migrant species including the Vestal *Rhodometra sacraria* (Linnaeus), the Gem *Orthonoma obstipata* (Fabricius), Small Mottled Willow *Spodoptera exigua* (Hübner) and Scarce Bordered Straw *Heliocoverpa armigera* (Hübner), were all reported in above average numbers.

Of the rarer species, fourteen Tree-lichen Beauty *Cryphia algae* (Fabricius) were recorded along the south coast of England with one exception from Hertforfordshire. The fourth and fifth British examples of the Passenger *Dysgonia algira* (Linnaeus) were captured in Kent and Dorset respectively; a pair of Lydd Beauty *Peribatodes ilicaria* (Geyer), only previously recorded twice before, were captured on the Isle of Wight and the example of the pyrale *Etiella zinckenella* (Treitschke) reported from St Agnes, Isles of Scilly, represents the fourth British record.

Four species deserve special mention for two of these, the Pale-shouldered Brocade *Chloantha hyperici* ([Denis & Schiffermüller]) from Kent and the pyrale *Duponchelia fovealis* Zeller from Norfolk were new to the British list. The third, a well-travelled looking male Pine Lappet *Dendrolimas pini* (Linnaeus) from the Isle of Wight in August, was the first British example for almost two hundred years and finally the male example of the Marsh Dagger *Acronicta strigosa* ([Denis & Schiffermüller]) reported from Rye Harbour, East Sussex, in July may well have been the first immigrant example of a species which was formerly resident in England, but last noted in Cambridgeshire in 1933.

The downside of 1996 was perhaps the deterioration of the weather from early September with the result that this month and October, traditionally considered to be full of promise for immigrants, yielded very little of note; exceptions being the Scarce Arches *Luperina zollikoferi* (Freyer) from West Sussex in early September; the seventeenth British record and the first for almost thirty years and the fourth example, in recent times, of the Red-headed Chestnut *Conistra erythrocephala* ([Denis & Schiffermüller]) recorded in late October, also from the Littlehampton district.

In the hope of aiding the compilation of the immigrant reports for future years and enabling a quicker publication it is requested that records should be stated clearly

with as full details as possible and ideally the Watsonian vice-county should be given. If it is not possible to give the vice-county, a six figure grid-reference would aid the placing of the record within a vice-county at the compilation stage. The dates given for the records should be the day of the sighting, or if from a light trap it should be the date of the evening that the trap was operated. If the date given with the records is for the following morning, this should be stated clearly so that the records could be suitably amended to ensure a consistent approach.

The species listed in the annexes are laid out following Bradley & Fletcher (1979) with additions interpolated at the appropriate position. The nomenclature has been updated utilising Karsholt & Razowski (1996). Several records were supplied by more than one contributor and it is possible that some duplication of records has occurred, although every effort was made to eliminate this. Little attempt has been made to interpret locality data and it is possible that the same site is occasionally treated by different names. Records placed in square brackets either require confirmation, are known to be releases or, for example the Cypress Carpet *Thera cupressata* (Geyer), are of individuals that are considered to be resident but are included for interest. The abbreviations listed below are used in Annex 1.

Abbreviations

E	Exotic introduction/escape
I	Primary immigrant
In	Introduction
R	Resident
R(i)	Recent resident/Invader
R(t)	Temporary resident
V	Vagrant

ANNEXE 1: RECORDS OF "SCARCER" SPECIES

YPONOMEUTIDAE

***Yponomeuta rorella* (Hübner) [I?/V?]**

DORSET (9): Arne, 22.7 (PD); Higher Hyde, 7.8 (PHS per PD); Morden Bog, 26.7 - 11 (PD); Portland Bird Observatory, 22.7 to 30.7 - 13 (including 26.7 - 6) (MC per PD); Trigon, 21.7 - 2; 5.8 - 3 (PD); Weymouth, 22.7 - 2 (PHS per PD); CHANNEL ISLANDS (113): St. Martin's, 7/8 - 1 (Austin 1997).

ETHMIIDAE

***Ethmia quadrillella* (Goeze) (=funerella (Fabricius)) [I?]**

EAST SUSSEX (14): Holywell, 13.8 (MSP & CRP).

***Ethmia bipunctella* (Fabricius) [I?]**

ISLE OF WIGHT (10): Freshwater, 21.8 (Knill-Jones 1998); EAST NORFOLK (27): Wheatacre, 19.8 (RH per Hipperson (1996)).

TORTRICIDAE

***Epiblema grandaevana* (Lienig & Zeller) [I?]**

SOUTH-EAST YORKSHIRE (61): Spurn, 7.6 (BS).

***Cydia amplana* (Hübner) [I/R(t)?]**

SOUTH DEVON (3): Abbotskerswell, 17.8 (Davey 1997); Beer, 17.8 - 1+; 18.8 (BH); Plympton, 18.8 - 1 male & 1 female; 19.8; 20.8 (RJH); Teignmouth, 7.8 (RMc per Agassiz *et al* (1998)); DORSET (9): Morden, 8.8 (PD); Portland Bird Observatory, 5.8 - 5; 7.8 - 4; 8.8; 18.8 - 3; 19.8 - 2 (MC per PD); Worth Matravers, 18.8 - 2 (MT); CHANNEL ISLANDS (113): Guernsey, L'Ancresse, 18.8 - 2 (Austin 1997); Guernsey, St. John, 19.8 (Austin 1997).
Summary: (3): 8+; (9): 18; (113): 3.

PYRALIDAE

***Euchromius ocellea* (Haworth) [I]**

WEST CORNWALL (1): Church Cove, The Lizard, 24.10 (PS per MT[2]); SOUTH DEVON (3): Plympton, 18.8 (RJH); SOUTH HAMPSHIRE (11): Swanmoor, 25.11 - 1 dead (B. Elliot per BFS); EAST KENT (15): Greatstone, 10.8 (BB per SPC); [SHETLAND ISLANDS (112): Eswick, 17.9 (Agassiz *et al* (1998)), reported in error, refers to 1995 record].

***Pediasia aridella* (Thunberg) [I?/V?]**

SHETLAND ISLANDS (112): Eswick 11.8 (TDR per Pennington (1997)).

***Platytes alpinella* (Hübner) [I?]**

DORSET (9): Portland Bird Observatory, 22.7; 19.8 (MC); ANGUS (90): Lunan Bay, 7.8 - 4 (Goater 1997); SHETLAND ISLANDS (112): Eswick, 11.8 (TDR per Pennington (1997)).

***Evergestis extimalis* (Scopoli) [I?/V?]**

Note: Records outside Thames Estuary and Breckland only.
WEST CORNWALL (1): Church Cove, The Lizard, 29.9 (MT[2]); St. Agnes, Isles of Scilly, 17.6 - 3; 27.7; 12.8; 17.8 (JH & MH); SOUTH DEVON (3): Beer, 30.8 (BH); Branscombe, 13.6 (PB); West Hill, Ottery St Mary, 18.9 (PB); DORSET (9): Portland Bird Observatory, 16.8 (MC); Worth Matravers, 19.8 (MT); ISLE OF WIGHT (10): Freshwater, 16.8 (SAKJ); SOUTH HAMPSHIRE (11): Beaulieu, 14.8 (BIJ per BG); WEST SUSSEX (13): Pagham Harbour, 5.8 (BFS & MSP); EAST KENT (15): Densole, 9.8 (TR); Herne Bay, 2.9 (BM); EAST NORFOLK (27): Rockland St. Mary, 7.8 (CR per Hipperson (1996)); SOUTH-EAST YORKSHIRE (61): Spurn, 11.8; 21.8 - 2 (BS); CHANNEL ISLANDS (113): Guernsey, L'Ancresse, 27.7 (Austin 1997).
Summary: (1): 7; (3): 3; (9): 2; (10): 1; (11): 1; (13): 1; (15): 2; (27): 1; (61): 3; (113): 1.

***Evergestis limbata* (Linnaeus) [I]**

WEST SUSSEX (13): Walberton, 23.7 (JTR per CRP).

***Loxostege sticticalis* (Linnaeus) [I]**

WEST CORNWALL (1): St Agnes, 18.8; 20.8 (JH & MH); The Lizard, 18.8 (DB, AG & RCK); DORSET (9): Gaunt's Common, 18.8 (PD); Worth Matravers, 19.8 (MT); SOUTH HAMPSHIRE (11): Beaulieu, 14.8 (BIJ per BG); Lymington, 17.8 (Davey 1997); WEST SUSSEX (13): Walberton, 23.8 (JTR per CRP); EAST SUSSEX (14): Holywell, 21.8 (CRP & MSP); Icklesham, 14.8 (IH per CRP); Peacehaven, 16.8; 29.8 (CRP); Rye Harbour, 20.8 (Davey 1997); EAST KENT (15): Densole, 27.8 (TR); Dungeness, 20.8 (DW per SPC); Dymchurch, 7.6 (JO per SPC); Greatstone, 23.8 (BB per SPC); New Romney, 13.8; 17.8 (KR per SPC); WEST KENT (16): Gravesend, 7.8 (Agassiz 1998); SURREY (17): Betchworth, 9.8; 18.8 (CH); Centenary Fields, Lingfield, 26.7 - 1 male (JHC); Lingfield, 24.8 - 1 female (JHC); NORTH ESSEX (19): St Osyth, 17.7 (RWA per BG[2]); CAMBRIDGESHIRE (29): Mepal, 15.8 (RP): EAST NORFOLK (27): Barnham Broom, 23.8 (JG per Hipperson (1996)); WEST NORFOLK (28): Barney Wood nr. Thursford, undated (MT[2]); Eccles, 17.8 (NB per Hipperson (1996)); NORTH LINCOLNSHIRE (54): Gibraltar Point, 14.8 (as 15.8 (Davey 1997)) (KMSW per RJ); Roughton, 10.8 (JJ per RJ); Scotterthorpe, 21.8 (RJ & W.J. Johnson); SOUTH-EAST YORKSHIRE (61): Spurn, 27.8 (BS); SOUTH WEST YORKSHIRE (63): West Melton, Rotherham, 6.8 (H.E. Beaumont per Agassiz *et al* (1998)); ISLE OF MAN (71): Callan Dhoon Maughold, 24.7 (LK per GDC);

DUMFRIESSHIRE (72): Connansknowe, Kirkton, 15.8; 20.8 (RM); MORAYSHIRE (95): Findhorn, 13.8 - 1 female; 15.8 - 6 (JHC); Tulloch, Rafford, 14.8 - 1 female (JHC); ORKNEY ISLANDS (111): Craigiefield, 16.8 (per SVG); North Manse, North Ronaldsay, 19.8 (N. Riddiford & MG per SVG); North Ronaldsay, Lighthouse, 13.8 (MG per SVG); Quoyberstane, 17.8 (SVG); Smyril Stenness, 17.8 (ERM per SVG); SHETLAND ISLANDS (112): Baltasound, 11.8 - 2; 14.8 (Pennington 1997); Eswick, 13.8 - 3; 14.8; 21.8 (TDR per Pennington (1997)); Fair Isle Observatory, 11.8 (M. Newell per Pennington (1997)); Foula, 13.8 (F. Ratter per Pennington (1997)); 25.8 (MGP); Ocraquoy, 14.8 (G. Petrie per Pennington (1997)); Veensgarth, 13.8 - 2; 22.8 (P. Sclater per Pennington (1997)); Voehead, Bressay, 22.8 (J. Gammack per Pennington (1997)) (as 21.8 per MGP).
Summary: (1): 3; (9): 2; (11): 2; (13): 1; (14): 5; (15): 6; (16): 1; (17): 4; (29): 1; (27): 1; (28): 2; (54): 3; (61): 1; (63): 1; (71): 1; (72): 2; (95): 8; (111): 6; (112): 16.

***Sitochroa palealis* ([Denis & Schiffermüller]) [I?/R?/R(t)]**

WEST CORNWALL (1): St. Agnes, Isles of Scilly, 2.8; 7.8 (JH & MH); SOUTH DEVON (3): Starcross, 5.8 (AHD); NORTH SOMERSET (6): Folly Farm, 9.8 (D. Watts per Barnett, Edmondson & Evans (1996d)); Oldbury Power Station, 8 (J. Martin per Barnett, Edmondson & Evans (1996d)); WILTSHIRE: Berril Valley, 3.7 - 2; 9.8 - 5 (EGS & MHS); Ladywell, 10.8 - 2 (EGS & MHS); Zealand Cross, 3.8 - 2 (EGS & MHS); NORTH WILTSHIRE (7): Chittoe, 20.7 (EGS & MHS); SOUTH WILTSHIRE (8): Imber Village, 5.8 - 6 (EGS & MHS); Shrewton Valley, 19.6 - 2 (EGS & MHS); Steeple Ashton, 8.7 - 2; 19.8 (EGS & MHS); Swindon, 14.8 (D. Brotheridge per Agassiz *et al* (1998)); West Down, 17.8 - 4 (EGS & MHS); DORSET (9): Portland Bird Observatory, 1.8 to 19.8 - 5 (MC); SOUTH HAMPSHIRE (11): Hamble Common, 4.8 - 1 flying in off sea by day (AHD); Hillhead, 1.8 (RWP); WEST SUSSEX (13): Pagham Harbour, 5.8 - 2 (BFS & MSP); EAST KENT (15): Densole, 28.8 (TR); Dungeness, 27.7; 1.8 (DW per SPC); 5.8 (JB per SPC); 2.8; 12.8 (KR per SPC); 14.8 (SPC); Dymchurch, 10.8 (JO per SPC); Littlestone, 13.8 (KR per SPC); Lydd-on-Sea, 10.8 (SPC); New Romney, 9.8 (KR per SPC); SURREY (17): South Croydon, 27.7 (GAC); SOUTH ESSEX (18): Danbury, 13.8 (G.A. Pyman per BG[2]); NORTH ESSEX (19): Beaumont-cum-Moze, undated (JBF per BG[2]); Dovercourt, 7 (CG per BG[2]); MIDDLESEX (21): Parliament Hill Fields, Hampstead, 3.8 (R.A. Softly per Agassiz *et al* (1998)); BERKSHIRE (22): near Aldworth, Berkshire Downs, 17.8 (B.R. Baker & M. Storey per Agassiz *et al* (1998)); Long Wittenham, 7 - 6 ("certainly resident") (MT); OXFORDSHIRE (23): Yarnton, 8.8 to 18.8 - 3 (MT); NOTTINGHAMSHIRE (56): Mission Training Range, 22.7 (S. Wright per Agassiz *et al* (1998)); CHANNEL ISLANDS (113): Guernsey, Trinity Cottages, 28.7 (JH[3] per Austin (1997)).
Summary: (1): 2; (3): 1; (6): 2; Wiltshire: 11; (7): 1; (8): 16; (9): 5; (11): 2; (13): 2; (15): 11; (17): 1; (18): 1; (19): 2; (21): 1; (22): 7; (23): 3; (56): 1; (113): 1.

***Ostrinia nubilalis* (Hübner) [I?/R?]**

WEST CORNWALL (1): St. Agnes, Isles of Scilly, 20.7 (JH & MH); The Lizard, 18.8; 19.8 (DB, AG & RCK); SOUTH DEVON (3): Countess Wear, Exeter, 22.7 (PB[2] per RMc); Starcross, 26.6 to 27.6 - 1 (AHD); DORSET (9): Portland Bird Observatory, 21.7 to 22.7 - 4 (MC); ISLE OF WIGHT (10): Binstead, 24.7 (BJW); Freshwater, 26.6; 7.8 (SAKJ); EAST SUSSEX (14): Friston Forest, 27.7 (MSP & CRP); SURREY (17): Raynes Park, 22.7 (MSP); WEST NORFOLK (28): Eccles, 20.7; 26.7; 31.7; 1.8 (NB per Hipperson (1996)).
Summary: (1): 3; (3): 2; (9): 4; (10): 3; (14): 1; (17): 1; (28): 4.

***Psammotis pulveralis* (Hübner) [I]**

EAST KENT (15): Dungeness, 27.7 (DW per SPC); Greatstone, 30.7 (BB per SPC); Lydd, 25.7 (KR per SPC).

***Udea fulvalis* (Hübner) [R(t)?/R(i)?]**

ISLE OF WIGHT (10): Freshwater, 31.7; 2.8; 7.8; 9.8; 13.8 - 2; 20.8 (SAKJ).

***Maruca vitrata* (Fabricius) (=*testulalis* (Geyer)) [I?/E?]**

WEST KENT (16): Petts Wood, 27.7 (D. O'Keeffe per Agassiz *et al* (1998)).

[***Duponchelia fovealis*** **Zeller [I(?)/E]**
EAST NORFOLK (27): Thorpe St Andrew, 10.9 (D. Hipperson per Agassiz *et al* (1998)).]

Palpita unionalis **(Hübner) [I]**
WEST CORNWALL (1): Church Cove, The Lizard, 19.10; 20.10 (MT[2]); 19.10 (PS per MT[2]); DORSET (9): Durlston, 14.10 (JEC); Gaunt's Common, 22.10 (PD); Portland Bird Observatory, 19.8; 23.10 - 2 (MC); ISLE OF WIGHT (10): Binstead, 19.8 (BJW); Freshwater, 3.11 (SAKJ); SOUTH HAMPSHIRE (11): Brockenhurst, 24.10 (JEC); Southsea, 20.8 (JRL per BG); WEST SUSSEX (13): Littlehampton, 3.11; 11.11 (Mrs R.E. Pratt per CRP); Walberton, 1.11 (JTR per CRP); EAST KENT (15): Dungeness, 2.9 (SPC); Greatstone, 12.8; 19.10; 24.10 (BB per SPC); Herne Bay, 24.10 (BM); Littlestone, 20.10 (KR per SPC); Lydd-on-Sea, 9.8 (SPC); New Romney, 14.10 (KR per SPC); ISLE OF MAN (71): Callan Dhoon Maughold, 9.8 (LK per GDC).
Summary: (1): 3; (9): 5; (10): 2; (11): 2; (13): 3; (15): 8; (71): 1.

Conobathra tumidana **([Denis & Schiffermüller]) [I]**
WEST SUSSEX (13): Walberton, 18.8 (JTR per CRP); EAST KENT (15): Dungeness, 9.8 (DW per SPC, see also Clancy (1997)); 19.8 - 2; 20.8; 21.8 - 3 (KR per SPC, see also Clancy (1997)); 17.8; 19.8; 22.8 (SPC, see also Clancy (1997)); Greatstone, 5.8 - 2; 18.8 - 3; 19.8 - 2 (BB per SPC, see also Clancy (1997)); Lydd, 18.8; 19.8 (KR per SPC, see also Clancy (1997)); Lydd-on-Sea, 19.8 (SPC, see also Clancy (1997)); New Romney, 11.8; 12.8; 13.8; 18.8 (KR per SPC, see also Clancy (1997)).
Summary: (13): 1; (15): 24.

Sciota hostilis **(Stephens) [I?]**
EAST KENT (15): New Romney, 7.6 - 1 female (KR per SPC).

[***Sciota adelphella*** **(Fischer von Röslerstam) [R?/R(t)?/R(i)?]**
Note: Does not include Kent records where species is considered resident.
NORTH ESSEX (19): St Osyth, 14.7; 9.8 (RWA per BG[2])].

Etiella zinckenella **(Treitschke) [I?]**
WEST CORNWALL (1): St. Agnes, Isles of Scilly, 20.7 (JH & MH).

Dioryctria abietella **([Denis & Schiffermüller]) [I?/V?/R?]**
WEST CORNWALL (1): St. Agnes, Isles of Scilly, 17.6; 15.8 (JH & MH); DORSET (9): Portland Bird Observatory, 16.6 to 19.8 - 8 (MC); WEST SUSSEX (13): Pagham Harbour, 5.8 - c.8 (BFS & MSP); EAST SUSSEX (14): Holywell, 13.8 (CRP & MSP); SURREY (17): Banstead, 8.8 (S.W. Gale per Plant (1997)); Locality not given, 5.8 - 2; 9.8 (PAC); MIDDLESEX (21): West Hampstead, undated (D. Rear per Plant (1997)); CAERNARVONSHIRE (49): Bangor, 6.8 (DL per CWP); Cors Bodgynydd, 13.7 (A.M. Davis per Agassiz *et al* (1998)); SOUTH-EAST YORKSHIRE (61): Spurn, 21.8 (BS); EAST PERTHSHIRE (89): Kindrogan, 3.8 (BG per Agassiz *et al* (1998)); ORKNEY ISLANDS (111): North Ronaldsay, 7.8 - 1 from a car windscreen (MG per SVG); SHETLAND ISLANDS (112): Baltasound, 13.8; 18.8 - 2 (Pennington 1997); Easter Quarff, 9.8 (Pennington 1997); Eswick, 7.8 to 15.8 - 23 (Pennington 1997); Foula, 11.8 (Pennington 1997); Norwick, 12.8 - 6 (Pennington 1997); Upper Toft, Fetlar, 12.8 (Pennington 1997).
Summary: (1) 2; (9): 8; (13): 8; (14): 1; (17): 4; (21); (49): 2; (61): 1; (89): 1; (112): 35.

Ancylosis oblitella **(Zeller) [I?/R(t)?/R?]**
WEST CORNWALL (1): St. Agnes, Isles of Scilly, 5.9 (JH & MH); SOUTH DEVON (3): Axmouth Saltings, 4.8 (McCormick 1997); Dawlish Warren, 19.7 (McCormick 1997); NORTH SOMERSET (6): Wain's Hill, Clevedon, 31.7 (per Barnett, Edmondson & Evans 1996c); DORSET (9): Gaunt's Common, 22.7 - 2; 19.8 - 2 (PD); Portland Bird Observatory, 18.7 to 6.9 - 10 (MC); SOUTH HAMPSHIRE (11): Southsea, 20.7; 22.7; 7.8; 18.8 - 2 (JRL); 18.8 (IRT per BG); Warsash, 21.7 to 22.7 (PMP per BG); WEST SUSSEX (13): Pagham Harbour, 19.8; 2.9

(JTR per CRP); EAST SUSSEX (14): Friston Forest, 18.8 (MSP & CRP); Holywell, 14.7 (MSP & CRP); Icklesham, 20.8; 25.8 (IH per CRP); Peacehaven, 5.8 - 2; 20.8 (CRP); Rye Harbour, 6.6; 21.7; 22.7 - 2; 23.7 - 3; 24.7; 25.7 - 5; 26.7 - 3; 27.7 - 6; 28.7 - 3; 29.7; 31.7 (DJF per CRP); GLAMORGAN (41): Manselfield, Swansea, 23.7 (per DG); SOUTH-EAST YORKSHIRE (61): Spurn, 29.7 (BS).
Summary: (1): 1; (3): 2; (6): 1; (9): 14; (11): 7; (13): 2; (14): 34; (41): 1; (61): 1.

PAPILIONIDAE

[The Swallowtail *Papilio machaon* Linnaeus [In/I?]

Note: Subspecies was not stated for the following records.
Locality not given, undated - 2 "reported" (Bowles 1996b); EAST KENT (16): Dover, near Eastern Docks, 28.8 (D.M. Batchelor per JM); SURREY (17): Wisley RHS Garden, 13.6 (?a possible release) (A. Reid per Jeffcoate & Gerrard (1997)); DERBYSHIRE (57): Dronfield, 16.8 (? possible escape) (Frost 1996a); Woodlinkin, 7.9 (? possible escape) (Frost 1996a)].

PIERIDAE

Pale Clouded Yellow *Colias hyale* (Linnaeus) [I]

Locality not given, undated - positively identified (Bowles 1996c); [SOUTH HAMPSHIRE (11): Betley Station Meadow 3.8 - recorded as either *hyale* or *helice* form of *croceus* (B. & Mrs S. Clark per Taverner (1997)); Bramshaw Telegraph, 10.8 (T. Bernhard per Taverner (1997)); Fletchwood Meadows, 9.6 - 1 female (Jenkins 1996) (all S. Hampshire records treated as unconfirmed)]; WEST NORFOLK (28): Thompson Common, 15.8 (M. Densley & R.J. Densley); Wells Wood, 18.8 (Davey 1997).

Berger's Clouded Yellow *Colias alfacariensis* Ribbe [I]

[Locality not given, "reported" (Bowles 1996b) (record treated as unconfirmed)]; DORSET (9): Martin Down, 12.6 - laying on horshoe vetch *Hippocrepis comosa* (F. Train per Batty (1996b); [Westleton, Portland, 14.9 (Hill 1997); SOUTH HAMPSHIRE (11): Titchfield Haven, 18.8 (Hill 1997); EAST SUSSEX (14): Rye Harbour, 26.8 (Anon. per CRP), CRP considers this requires confirmation; KENT: Locality not given, undated - 1 larva (not confirmed) (Bowles 1996b).]

[Berger's Clouded Yellow *Colias alfacariensis* Ribbe or Pale Clouded Yellow *Colias hyale* (Linnaeus) [I]

DORSET (9): Holton Heath, 3.8 (Davey 1997) (as 5.8 in (Hill 1997)); ISLE OF WIGHT (10): Bembridge, 8.8 (AB & LB per Taverner (1997)).]

Clouded Yellow *Colias croceus* (Fourcroy) [I]

Summary only: The vice-county number is given in brackets, followed by the number of individuals sighted in each vice-county (county or other geographic area). Where no numbers were given for an individual record, it was taken to be 1. Hence, the totals are approximate. This is followed by the monthly representation of the records. In several cases it was impossible to assign a given record to an individual month. As with the totals for the vice-counties, the monthly totals are, therefore, approximate.
Summary: Cornwall: Daubuz's Moor, Truro: 2; (1): 50+; (2): 5+; (3): 35+; (Devon: 240 (Bristow 1997)); (5): 7+; (6): 1; (8): 7+; (9): 120+; (10): 347+; (11): 116+; ((10, 11 & 12): 1,000+ (per Taverner (1997)); Sussex, Brighton: 7; (13): 280+; (14): 384+; (15): 602+; (16): 203+; (17): 70+; Essex: 1; (18): approx. 143; (19): 14; (20): 9+; (21): 8; (22): 32+; (23): 2; (25): 8; (28): 6; (30): 2; (38): 1; (41): 1+: (44): 11; (56): 129+; (57): 96; (58): 4; Lancashire: 1; (61): 20+; (63): 10; S. Yorks: 3; (69): 6; (70): 15; (73): 1; (113): 86; Northern Ireland: 1.
May: 2; June: 195+; July: 80+; August: 1571+; September: 235+; October: 74; November: 11+; December: 1+.
Earliest date: CHESHIRE (58): Locality not given, 31.5 (Bowles 1996b).
Latest dates: SOUTH HAMPSHIRE (11): Hengistbury Head, 4.12 (MJG per Taverner (1997)); EAST SUSSEX (13): Beachy Head, 9.11 (P. Wilson per CRP).

Possibly significant records: WEST CORNWALL (1): The Lizard, 19.8 - 1 at mv light (DB, AG & RCK; SOUTH DEVON (3): Prawle Point, 7.6 - 1 to light (RMc); DORSET (9): Portland, 8 - up to 50 a day (MC); SOUTH HAMPSHIRE (11): Hengistbury Head, a group of 5-10 stayed in the same area through 11 to early 12; 16.11 - a mating pair (MJG per Taverner (1997)).

[Cleopatra *Gonepteryx cleopatra* (Linnaeus) [I?/In?]

Locality not given, 11 - probably an accidental introduction (Bowles 1997).]

[Black-viened White *Aporia crataegi* (Linnaeus) [I]

SUSSEX: Locality not given, 15.7 (Bowles 1996c).]

Bath White *Pontia daplidice* (Linnaeus) [I]

EAST KENT (15): Lade, Lydd-on-Sea, 8.8 (Dr A. Woiwod per Woiwod (1997)).

LYCAENIDAE

Long-tailed Blue *Lampides boeticus* (Linnaeus) [I]

WEST CORNWALL (1): St Mary's, 14.10 (Hill 1997); SOMERSET: Locality not given, 15.8 (Bowles 1996c); DORSET (9): Batcombe Down, 7.8 (A. Elliot per PD); MIDDLESEX (21): Gillespie Park, 19.7 (D. Bevan per Plant (1997)).

NYMPHALIDAE

American Painted Lady *Vanessa virginiensis* (Drury) [I]

LEICESTERSHIRE (55): Rutland Water, 17.8 (Davey 1997).

Large Tortoishell *Nymphalis polychloros* (Linnaeus) [I]

CHANNEL ISLANDS (113): Guernsey, Jerbourg, 7.6 (Austin 1997).

Camberwell Beauty *Nymphalis antiopa* (Linnaeus) [I]

Note: About 50 records of emerged hibernators (surviving from 1995) (Bowles 1996d).

Locality not given, 3 - 2; first week of 4 - 5; 14 sightings by end of 4 (Bowles 1996a); 5 - 7 (Bowles 1996b); WEST CORNWALL (1): Marazion Marsh, 19.8 (per D. Flumm per RDP & PP); NORTH SOMERSET (6): Bath, 16.3 (per JM^2 per MRH); NORTH SOMERSET/WEST GLOUCESTERSHIRE: Locality not given, 10.3 (Bowles 1996a); ISLE OF WIGHT (10): Arreton, 9.9 (D.L.H. Miller per Taverner (1997)); Freshwater Lake, 6.9 (D. Nash per SAKJ); NORTH HAMPSHIRE (12): Fleet, 18.6 (Ms J. Nation per Taverner (1997)); WEST SUSSEX (13): Ardingly, 7.9 (J. Howell per CRP); Chiddingfold Forest (as Kingspark Wood per CRP), 8.4 (Willmott 1997); Horsted Keynes, 17.7 (D. Sadler per CRP); Levin Down, 15.8 (D. Dell per CRP); Worthing, 23.3 (J. Newnham per CRP); EAST SUSSEX (14): Hartfield, 8.5 (RH^2 per CRP); EAST KENT (15): Bekesbourne, Canterbury, 18.7 (S. Elks per JM); Chatham, 6.9 (B. Hooper per JM); Denge Wood, Ashford, 16.4 (L. Clemons per JM); 12.5 (M. & P. Riley per JM); Dungeness, 15.9 (J. Bradley & S. Busuttil per JM); near Gillingham, 12.5 (PK per JM); Lydden Village, 9.6 (AC per JM); north of Snodland, 21.8 (M.P. Sutherland per JM); Pegwell Bay, 8.4 (per R. Goy per JM); Rectory Gardens, Swalecliffe, 27.4 (M. Pamphilon per JM); Wye Crown, 9.6 (AC per JM); WEST KENT (16): Crockham Hill, near Sevenoaks, 14.9 (Ms R. Lewis per GRE); SURREY (17): Addington, Croydon, 15.8 (J.D. Sims per MSP); Ashtead Common, 22.7 - a probable sighting (S. Price per Jeffcoate & Gerrard (1997)); Coulsdon Common, 13.5 (R. Hawkins per Jeffcoate & Gerrard (1997)); Croydon, 22.8 (Anon 1996a); Roehampton, 29.8 (Mrs W. Matthews per GRE); SOUTH ESSEX (18): Hadleigh, 5.4 (G. Bailey per JF); Maldon, 14.9 (Hill 1997); Rayleigh, 12.8 (G. Bailey per BG^2); Thundersley, undated (per MRH); NORTH ESSEX (19): Jaywick, 19.9 (JY per BG^2); Mistley, 15.9 (ICR per JF); Thorpe-le-Soken, 7.9; 14.9 (R. Wood per JF); 7.9 - 2 (J. Aird per BG^2); HERTFORDSHIRE (20): Locality not given, 25.8 (Bowles 1996c); Hoddeston, 26.3 (Rev. T. Gladwin per MRH); MIDDLESEX (21): Locality not given, 8.7 (Bowles 1996c); BERKSHIRE (22): Locality not given, undated (Bowles 1996d); EAST SUFFOLK (25): Minsmere, 16 to 21.8 - at least 2 (Anderson & Wilson 1997); NORFOLK:

Locality not given, undated (Bowles 1996d); EAST NORFOLK (27): Catfield Fen, 8 (Hill 1997); Waxham, 7.9 to 9.9 (Hill 1997); Weybourne, 8; early 10 (Hill 1997); WEST NORFOLK (28): Holkham, 15.9 (Hill 1997); CAMBRIDGESHIRE (29): Locality not given, 4 (having overwintered) (Bowles 1996a); second week of 10 (Bowles 1996d); nr. Cambridge, undated - 1 hibernating (per JM[2] per MRH); BEDFORDSHIRE (30): Flitton, Luton, 8 (M. Healy per MRH); Locality not given, 15.8 (Bowles 1996c); WARWICKSHIRE (38): Midsummer Hill, 8 (Hill 1997); STAFFORDSHIRE (39): Cannock Chase, 4.4 (Hill 1997); Compton, Wolverhampton, 14.9 (P.A. Brown); Sandwell Valley, 4.9 (Hill 1997); LEICESTERSHIRE (55): Preston, 4.6 (P. Willson per K.J. Orpe); NOTTINGHAMSHIRE (56): Chilwell, 2.4; 16.8; 17.8 (M. Walker); DERBYSHIRE (57): Ashgate, Chesterfield, 26.4 (Frost 1996a); Bakewell, 6.9 (Frost 1996a); Golden Valley, 19.4 (Frost 1996a); CHESHIRE (58): Macclesfield, 26.4 (Ms G. Pierce per SHH); Locality not given, 5.9 (Hill 1997); SOUTH-WEST YORKSHIRE (63): Treeton Dyke, 29.7 (Frost 1996a); WESTMORLAND (69): Witherslack woods, 5 (I. Waller per DWK); FIFESHIRE (85): Locality not given, 21.9 (Hill 1997); MID PERTHSHIRE (88): Ben Lawers, 5.4 (Bowles 1996a); SHETLAND ISLANDS (112): [Burra, 16.8 - unconfirmed (Pennington 1997)]; Exnaboe, South Mainland, 16.8 (MGP).

Summary: (1): 1; (6): 1; Som./Gloucs.: 1; (10): 2; (12): 1; (13): 5; (14): 1; (15): 11; (16): 1; (17): 5?; (18): 4; (19): 4 (or 5); (20): 2; (21): 1; (22): 1; (25): 2; Norfolk: 1; (27): 4; (28): 1; (29): 3?; (30): 2; (38): 1; (39): 3; (56): 3; (57): 3; (58): 2; (63): 1; (69): 1; (85): 1; (88): 1; (112): 1[+1?].

Queen of Spain Fritillary *Argynnis lathonia* (Linnaeus) [I/R(t)?]

DEVON: Locality not given, undated (Bowles 1996c); WILTSHIRE: Locality not given, 22.7 to 16.8 - 2 regularly seen (Bowles 1997); SOUTH WILTSHIRE (8): Middleton Hill, Salisbury, undated (Mrs B. Last per GRE); DORSET (9): Durlston Country Park, 20.7 (Anon 1996a); Locality not given, 21.7 (Bowles 1996c), refers to Durlston Country Park (M. Gibbons per N. Bowles); ESSEX: Locality not given, 29.7 (Bowles 1996c); EAST SUFFOLK (25): Burgh St. Peter, 23.8 (Hill 1997); Carlton Marsh, 18.8 (Hill 1997); Dunwich Heath, 21.8 (Hill 1997); Minsmere, 1.8; "up to 5 could be seen from the middle of the month" (Hill 1997); 16 to 19.8 - 3 (R. Souter per MRH); 7.9 (JEC & JMS); EAST GLOUCESTERSHIRE (33): Shenberrow Hill, 17.8 (Dr S. Foster per Woiwod (1997)); CHANNEL ISLANDS (113): Guernsey, Passiflora area, 26.7 (Austin 1997).

Summary: Devon: 1; Wiltshire: 2; (8): 1; (9): 2?; Essex: 1; (25): 8+; (33): 1; (113): 1.

The Monarch *Danaus plexippus* (Linnaeus) [I]

CORNWALL: Locality not given, 30.9 (Bowles 1996d); WEST CORNWALL (1): Crowan, 31.9 (Hill 1997); St. Agnes, Isles of Scilly, 1.10 (Hill 1997); St. Levan, 4.10 (Hill 1997); St. Mary's. 6.10 (Hill 1997); DORSET (9): Portland Bird Observatory, 30.9 (MC per PD); 1.10 (MC); Southwell, 2.10, possibly the same individual as that at Portland on 1.10 (MC); SOUTH HAMPSHIRE (11): Lymington, 23.7 (Mrs R. Featherstone per Taverner (1997)); WEST SUSSEX (13): Pagham, 1.9 (S. Knapp per CRP); EAST SUSSEX (14): Seaford, 2.10 (H. Palmer per CRP); KENT: [Locality not given, undated - record requires confirmation (Bowles 1996d)]; EAST KENT (15): New Romney, 3.10 (A. Massey per JM); Whiteness, 1.10 (Hill 1997); HERTFORDSHIRE (20): St Albans, 31.8 (B. Wilfridge per R. Haynes); DERBYSHIRE (57): Matlock, 26.10 (Frost 1996a); WEST CORK (H3): Cape Clear, 10.10 (Hill 1997); CO. CORK: Locality not given, 5.10 - 2 (Hill 1997).

Summary: Cornwall: 1; (1): 4; (9): 3?; (11): 1; (13): 1; (14): 1; Kent: [1]; (15): 2; (20): 1; (57): 1; (H3): 2; Co. Cork: 2.

LASIOCAMPIDAE

Pine-tree Lappet *Dendrolimus pini* (Linnaeus) [I]

ISLE OF WIGHT (10): Freshwater, 12.8 (SAKJ).

DREPANIDAE

Dusky Hook-tip *Drepana curvatula* (Borkhausen) [I]

CHANNEL ISLANDS (113): Guernsey, L'Ancresse, 10.8 (Austin 1997).

GEOMETRIDAE

Rest Harrow *Aplasta ononaria* (Fuessly) [I?/V?]

EAST KENT (15): Littlestone, 22.7 - 1 female (KR per SPC) (probably the same as Dungeness, 21 to 23.7 (Anon 1996a)); CHANNEL ISLANDS (113): Guernsey, Le Chene, 19.8 (TNDP per Austin (1997)).

Blair's Mocha *Cyclophora puppillaria* (Hübner) [I]

DORSET (9): Worth Matravers, 18.8 (MT).

Sub-angled Wave *Scopula nigropunctata* (Hufnagel) [I]

EAST SUSSEX (14): Icklesham, 7.8 (IH per CRP); EAST KENT (15): Dungeness, 22.7 - 1 male (DW per SPC); Dymchurch, 12.8 (JO per SPC); Lydd, 12.8 - 1 female (KR per SPC).

Tawny Wave *Scopula rubiginata* (Hufnagel) [I]

SOUTH DEVON (3): Beer, 18.8 (BH); WEST NORFOLK (28): Stiffkey, 5.8 (TC per Hipperson (1996)) (probably same as 4.8 (Davey 1997)).

Least Carpet *Idaea rusticata* ([Denis & Schiffermüller]) [I?]

DORSET (9): West Bexington, 1.8 (RE per PD); SOUTH HAMPSHIRE (11): Brockenhurst, 23.7 (JEC); NORTH HAMPSHIRE (12): Selborne, 15.7; 22.7 (Aston 1997); EAST KENT (15): Dungeness, 21 to 23.7 (Anon 1996a); EAST NORFOLK (27): Wroxham, 28.7 (NB per Hipperson (1996)); Scole, 1.8 (M. Hall per Hipperson (1996)).

Portland Ribbon Wave *Idaea degeneraria* (Hübner) [I?]

WEST CORNWALL (1): St. Agnes, Isles of Scilly, 17.8 (JH & MH).

The Vestal *Rhodometra sacraria* (Linnaeus) [I]

WEST CORNWALL (1): between Lower Town & Middle Town, St Martin's, Isle of Scilly, 31.5 (RDP & PP); Kennack Sands, 21.10; 23.10 - 2 (JHC); Meadow Dean, Ruan Minor, 23.10 (JHC); Mullion, 18.8 to 26.8 - every night, max.: 19.8 - 3 (PAC); St Agnes, Isles of Scilly, 17.8 - 3; 18.8 - 7; 31.8 - 2; 29.10 (JH & MH); The Lizard, 18.8 - 5; 19.8 - 5 (DB, AG & RCK); 20.8 - 3 (DB); SOUTH DEVON (3): Abbotskerswell, 21.10 (BH); Beer, 27.8 (BH); Dawlish, 2.10; 14.10 - 3; 15.10 - 5; 16.10; 23.10 - 2; 27.10 (AR per RMc); Plympton, 20.8 (RJH); Starcross, 18.8; 1.11 to 2.11 - 1 (AHD); West Hill, Ottery St Mary, 27.7; 13.10 (PB); SOUTH SOMERSET (5): Staplegrove, Taunton, 2.8 (JMc); DORSET (9): Chardstock, 23.10 (AJ per RMc); Gaunt's Common, 13.10 - 11; 22.10 - 2 (PD); Portland Bird Observatory, 13.8 to 23.10 - 4 (MC); Worth Matravers, 19.8 (MT); ISLE OF WIGHT (10): Freshwater, 23.10 (SAKJ); SOUTH HAMPSHIRE (11): Goatspen Plain, near Sway, 27.7 (Waring 1997); Kings Somborne, 13.10 (TJN per BG); Rownhams, 25.10 (K. Godfrey per BG); Sparsholt, 6.8; 14.10 - 3; 31.10 (RAB); Warsash, 17.10 (PMP per BG); NORTH HAMPSHIRE (12): Selborne, 23.7 (AEA per BG); WEST SUSSEX (13): Walberton, 28.7; 24.10 (JTR per CRP); EAST KENT (15): Dungeness, 20.10 (KR per SPC); Greatstone, 24.10; 25.10 (BB per SPC); Littlestone, 23.7 (KR per SPC); Lydd-on-Sea, 22.10 (SPC); OXFORDSHIRE (23): Yarnton, 8.8 (MT); WEST GLOUCESTERSHIRE (34): Stancombe, 23.8 (Ms B. Lumb per Barnett, Edmondson & Evans (1996d)); WARWICKSHIRE (38): Charlecote, 12.10 (AG); 14.10 (DB); Pillerton Priors, 24.10 (C. Ivin per DB); Solihull, 15.10 (A. Pollard per DB); NORTH LINCOLNSHIRE (54): Willingham Forest, undated (CS per RJ); NOTTINGHAMSHIRE (56): Retford, 2.11 (Elliot & Wright 1997); ISLE OF MAN (71): Ballacriy Colby, 19.8 (IS & DS per GDC); Castletown, 28.8 (GDC); Dhoon Maughold, 20.8 - 3; 21.8; 6.9 (LK per GDC); DUMFRIESSHIRE (72): Connansknowe, Kirkton, 19.8; 20.8 - 5; 21.8 - 2; 22.8 - 3; 23.8 - 2; 25.8 - 2; 2.9; 4.9; 15.10 (RM); Locality not given, undated (Cheshire recorder per RM); CHANNEL ISLANDS (113): Guernsey, L'Ancresse, 25.8 (Austin 1997); Guernsey, La Broderie, 7.9; 8.9; 24.10 (PC per Austin (1997)); Guernsey, Trinty Cottages, 23.7 (JH[3] per Austin (1997)).

Summary: (1): 41; (3): 20; (9): 19; (10): 1; (11): 9; (12): 1; (13): 2; (15): 5; (23): 1; (34): 1; (38): 4; (54): 1; (56): 1; (71): 7; (72): 18; (113): 4.

The Gem *Orthonoma obstipata* (Fabricius) [I]

Summary only: The vice-county number is given in brackets, followed by the number of individuals sighted in each vice-county (county). Where no numbers were given for an individual record, it was taken to be 1. Hence, the totals are approximate. This is followed by the monthly representation of the records. In several cases it was impossible to assign a given record to an individual month. As with the totals for the vice-counties, the monthly totals are, therefore, approximate.
Summary: (1): 31; (3): 182+; (5): 3; Som./Gloucs.: 1; (7): 1; (8): 3; (9): 98; (10): 18; (11): 88+; (12): 7+; (13): 29; (14): 14; (15): 59; (16): 2; (17): 17; (18): 11; (19): 3; (22): 1; (24): 3; (25): 1; (27): 1; (28): 1; (32): 1; (33): 5; (34): 1; (38): 12; (40): 1; (41): 11; (44): 3 (?+); (49): 1; (54): 1; (55): 1; (56): 4; (57): 6; (61): 3; (69): 3; (71): 1; (72): c.8; (112): 1.
May: 1; June: 176+; July: 116+ ; August: 125+; September: 22+; October: 97+; November: 3.
Earliest date: SOUTH WILTSHIRE (8): Steeple Ashton, 7.5 (EGS & MHS).
Latest dates: WARWICKSHIRE (38): Charlecote, 13.11 (AG).
Possibly significant records: SOUTH DEVON (3): Prawle Point, 7.6 - 100's; 20.8 - "common" (RMc).

[Cypress Carpet *Thera cupressata* (Geyer) [R(i)]

Note: Channel Islands records not included.
ISLE OF WIGHT (10): Freshwater, 24.10; 30.10; 13.11 (SAKJ).]

Barberry Carpet *Pareulype berberata* ([Denis & Schiffermüller]) [I?]

EAST KENT (15): Dungeness, 17.8 - 1 male (DW per SPC); Greatstone, 21.8 - 1 male (BB per SPC).

[The Channel Islands Pug *Eupithecia ultimaria* Boisduval [R(i)]

SOUTH HAMPSHIRE (11): Hayling Island, 30.7 - c.50 larvae; 31.7 - larvae (Langmaid 1996); WEST SUSSEX (13): Atherington, 5.8 - c.40 larvae (MSP & BFS); Climping, 5.8 - c.40 larvae (MSP & BFS); Selsey Bill, 5.8 - c.10 larvae (MSP & BFS); West Wittering, 5.8 - c.10 larvae with 1 beat of a tamarisk bush (MSP & BFS).]
Langmaid (1996) gives a summary of the history of the species in Britain.

Dusky Peacock *Macaria signaria* (Hübner) [I]

EAST SUSSEX (14): Beckley, 31.7 (DJF per CRP).

Lunar Thorn *Selenia lunularia* (Hübner) [I?]

EAST KENT (15): Greatstone, 19.8 (BB per SPC); Littlestone, 10.8 (KR per SPC); Lydd, 21.8 (KR per SPC); New Romney, 9.8 (KR per SPC).

Lydd Beauty *Peribatodes ilicaria* (Geyer) (=*manuelaria* (Herrich-Schäffer)) [I]

ISLE OF WIGHT (10): Ninham, 14.8 - 1 male; 18.8 - 1 female (JR).

Barred Red *Hylaea fasciaria* (Linnaeus) [I?/V?]

WEST CORNWALL (1): St. Agnes, Isles of Scilly, 24.6 (JH & MH).

NOTODONTIDAE

Oak Processionary *Thaumetopoea processionea* (Linnaeus) [I]

DORSET (9): Worth Matravers, 18.8 (MT); CHANNEL ISLANDS (113): Guernsey, Le Chene, 19.8 - 2 (TNDP per Austin (1997)).

SPHINGIDAE

Convolvulus Hawk-moth *Agrius convolvuli* (Linnaeus) [I]

WEST CORNWALL (1): Church Cove, The Lizard, 24.10 (MT[2]); 24.10 (PS per MT[2]); St. Agnes, Isles of Scilly, 1.8 - 1 larva; 17.8; 18.8 - 7; 24.8; 3.9; 7.9 - 2; 18.9 - 1 by day; The Lizard, 18.8;

19.8 (DB, AG & RCK); SOUTH DEVON (3): West Hill, Ottery St Mary, 18.9 (PB); NORTH SOMERSET/WEST GLOUCESTERSHIRE: Bristol, 27.7 (N. Tucker per Barnett, Edmondson & Evans (1996b)); DORSET (9): Gaunt's Common, 20.9 (PD); Portland Bird Observatory, 13.6; 19.8 to 4.9 - 4; 8 - 1 larva (MC); St Alban's Head, 20.8 (PD); West Bexington, 26.8 - 2; 3.9 - 2; 5.9; 6.9; 10.10 (RE per PD); ISLE OF WIGHT (10): Cranmore, 19.6 (Dr P. Waring per SAKJ); SOUTH HAMPSHIRE (11): Hayling Island, 26.9 (PIVS per BG); Upham, 3.8 - 1 at *Nicotiana* (I. Judd per G.C. Yorke per BG); SUSSEX: Brighton, 11.7 (per Booth Museum of Natural History per CRP); WEST SUSSEX (13): Horsham, undated (R. Edwards per CRP); Walberton, 24.8 (JTR per CRP); Yapton, 5.9 (J. Knight per CRP); EAST SUSSEX (14): Eastbourne, 2.9 (DD & JP per CRP); Holywell, 21.8 - 1 female (MSP & CRP); Rye Harbour, 12.6; 9.7; 3.8 (DJF per CRP); Three Oaks, nr. Hastings, 27.8 (P. Newton per CRP); Uckfield, 15.8 (M. Stenning per CRP); Woodingdean, 15.8 - 1 full-grown larva (AB[2] per CRP); EAST KENT (15): Dungeness, 18.9 (DW per SPC); 1.9 - 2 males (TR); Herne Bay, 17.9 to 3.9 - 17 (including 26.8 - 3; 31.8 - 3); 13.10 (BM): Littlestone, 23.8 (KR per SPC); SOUTH ESSEX (18): Bradwell-on-Sea, 4.10 - 1 female (SD); EAST NORFOLK (27): Salthouse Heath, 10.8 - 2 (TC per Hipperson (1996)); WEST NORFOLK (28): Eccles, 6.9 (NB per Hipperson (1996)); Holkham NNR, 10.8 (MT[2] & TC); NORFOLK: Tuddenham, 1.8 (A. Bull per Hipperson (1996)) (this may refer to WEST SUFFOLK (26)); EAST GLOUCESTERSHIRE (33): Longney, 3.9 (AS & SS per RG); SOUTH LINCOLNSHIRE (53): Gedney Drove End, 23.8 (H. Matthews per GRE); GLAMORGAN (41): Kenfig NNR, undated (per DG); NORTH LINCOLNSHIRE (54): Anderby Creek, undated (CS per RJ); Dalby, 20.8 (Mrs M.E. Dawson per RJ); Gibraltar Point, 19.8 (KMSW per RJ); Roughton, 6.9 (JJ per RJ); SOUTH-EAST YORKSHIRE (61): Spurn, 15.8; 8.9 (BS); ISLE OF MAN (71): Ballacriy Colby, 14.8 - 2 (IS & DS per GDC); Ballastruan Colby, 5.9 (R. Pressley per GDC); Dhoon Maughold, 7.9 (LK per GDC); Glen Vine, 5.9 (R. Walker per GDC); DUMFRIESSHIRE (72): The Yett, Johnstonebridge, 27.8 (per RM); EAST INVERNESS-SHIRE (96): Kingussie, 8 (SCP per SPC); ORKNEY ISLANDS (111): A total of 16 (per SVG) including, Dale, Stronsay, 5.9 - 3 (J.F. Holloway per SVG); Egilsay, undated - 3 (T. Dean per SVG); SHETLAND ISLANDS (112): Baltasound, 12/13.8; 26.8; 28.8; 9.8 (Pennington 1997); Cullivoe, Yell, 26.8 (Pennington 1997); Cunningsburgh, 30.8 (Pennington 1997); Eswick, 23.8 to 27.8 - 7 (Pennington 1997); fishing boat off Fetlar, 18.8 (Pennington 1997); Gulberwick, 25.8 (Pennington 1997); Haroldswick, 29.8 (Pennington 1997); Lerwick, 27.8 - 2; 28.8; 29.8; 30.8 (Pennington 1997); Scalloway, 28.8 (Pennington 1997); South Nesting, 12.8 (Pennington 1997); Stove in Standwick, 26.8 (Pennington 1997); Sullom Voe, 22.8 (Pennington 1997); Sumburgh Head, 22.8 (Pennington 1997); Tingwall, 27.8 (Pennington 1997); Uyeasound, Unst, 15.8; 26.8; 28.8 to 3.9 - 2 (Pennington 1997); Voehead, Bressay 26.8 (Pennington 1997); West Burra, 29.8 (Pennington 1997); CHANNEL ISLANDS (113): Guernsey, La Broderie, 19.6; 6.8 (PC per Austin (1997)).
Summary: (1): 17 & 1 larva; (3): 1; Som./Gloucs: 1; (9): 14 & 1 larva; (10): 1; Sussex: 1; (13): 3; (14): 7 & 1 larva; (15): 22; (18): 1; Norfolk (or VC26?): 1; (27): 2; (28): 2; (33): 1; (41): 1; (53): 1; (54): 4; (61): 2; (71): 5; (72): 1; (96): 1; (111): 16; (112): 33; (113): 2.

Death's-head Hawk-moth *Acherontia atropos* (Linnaeus) [I]

SOUTH DEVON (3): Prawle Point, 9.10 - pupa (AR per RMc); DORSET (9): Swanage, 21.7 (Anon 1996a); SOUTH HAMPSHIRE (11): Brockenhurst, 9.8 (HGHM & JTS per SPC); NORTH HAMPSHIRE (12): Chattis Hill, near Stockbridge, early 10 - larva (moth emerged early 11) (H.G. North per J.H. Taverner per BG); WEST SUSSEX (13): Findon, mid 8 - 1 larva (per DD per CRP); EAST SUSSEX (14): Barcombe, 4.9 - 1 larva (Mrs Lundin per CRP); Jevington, 8.8 - 2 larvae (P. Hodge per CRP); EAST KENT (15): Littlestone, 21.7 - 1 male (KR per SPC) (probably the same as Dungeness, 21 to 23.7 (Anon 1996a)); WEST KENT (16): Scadbury Park, undated - 1 larva (S. Hillier per BFS, from a newspaper cutting); WARWICKSHIRE (38): Sutton-under-Brailes, 29.9 - 1 larva on potato (Ms M. Perkins per DB); GLAMORGAN (41): Hensol, undated - 6 larvae feeding on aubergines in a greenhouse (per DG); SOUTH LANCASHIRE (59): St. Helen's, 23.7; 26.7; 28.7 (Anon 1996a); ORKNEY ISLANDS (111): Quoys, Rousay, 16.6 (L. Sutton per SVG); CHANNEL ISLANDS (113): Guernsey, L'Ancresse, 13.10 (Austin 1997); WEST CORK (H3): Locality not given, 6 (Ms H. Perry per Dr I.J. Kitching)
Summary: (3): 1 pupa; (9): 1; (11): 1; (13): 1 larva; (14): 3 larvae; (15): 1 (or 2?); (16): 1 larva; (38): 1 larva; (41): 6 larvae; (59): 3; (111): 1; (113): 1; (H3): 1.

Pine Hawk-moth *Hyloicus pinastri* (Linnaeus) [I?/V?]

DORSET (9): Portland Bird Observatory, 25.7; 19.8 (MC); West Bexington, 17.6 (RE per PD); EAST KENT (15): Densole, 6.8 (TR); Orlestone Forest, 12.7 (TR); NORTH ESSEX (19): Dawes Hall N.R., 20.7 (I. Grahame per BG[2]); Little Oakley, 27.7 (M. Henchman per BG[2]); Mistley, 13.7 (ICR per BG[2]); Saffron Walden, 5.7 (AME per BG[2]); SOUTH-EAST YORKSHIRE (61): Allerthorpe, 14.8 (ASE per SPC); Spurn, 8.8 (BS); CHANNEL ISLANDS (113): Guernsey, La Broderie, 31.7 (PC per Austin (1997)).

Humming-bird Hawk-moth *Macroglossum stellatarum* (Linnaeus) [I/R(t)?/R?]

Summary only: The vice-county number is given in brackets, followed by the number of individuals sighted in each vice-county (county or other geographic area). Where no numbers were given for an individual record, it was taken to be 1. Hence, the totals are approximate. This is followed by the monthly representation of the records. In several cases it was impossible to assign a given record to an individual month. As with the totals for the vice-counties, the monthly totals are, therefore, approximate.

Summary: Cornwall, Truro: 1; (1): 74+; (2): 2; (3): 43+; (4): 4; (5): 4; (6): 2; (8): 3; (9): 45+; (10): 34+; (11); 4+; (12): 8+; (a total of at least 115 between VCs 10, 11 & 12 (BG)); Sussex: Brighton - 17; (13): 65; (14): 151+; (16): 3; (17): 16; (18): 53 (+19 larvae); (19): 7; (20): 5+; (21): 3; (23): 5; (24): 7; (25): 2; Norfolk: "numerous" (Hipperson 1996); (29): 1;(30): 1; (32): 4; (33): 4; (34): 4; (37): 1; (38): 2; (39): 1; (40): 1; (41): 6; (44): 5; (49): 1 + 1 larva; (53): 4; (54): 15; (55): 2+; (56): 17; (57): 15; Midlands within 30 miles of Derby: 4 (Eames 1998); (58): 2; (61): 1; (63): 1; (69): 1; (70): 3; (81) 2; (72): 1; (112): 3; (113): 64; (H12): 1.

January: 1; March: 2; April: 6; May: 9+; June: 237+; July: 32+ (+ 2+ larvae); August: 175+ (+ 1+ larvae); September: 142+; October: 33+; November: 1.

Earliest dates: WEST CORNWALL (1): St Agnes, Isles of Scilly, 18.1 - 1, an example that was hibernating in a porch took wing on this date (JH & MH); CAERNARVONSHIRE (49): Lleyn Peninsula, 11.3 (D. Emley per CWP); WEST SUSSEX (13): Hove, 1.4 (R.M. Craske per CRP).

Latest dates: Worthing, 27.11 - 1 inside a house (D. Thorn per CRP); WEST SUSSEX (13): Walberton, 23.10 (JTR per CRP).

Possibly significant records: WEST CORNWALL (1): Church Cove, The Lizard, 18.4 - 1 to mv light (MT[2]); St Agnes, Isles of Scilly, 18.8 -1 to light; noted entering buildings in the last week of 10 (JH & MH); The Lizard, 9.10 - 1 at light (PB); SOUTH DEVON (3): Plympton, 6.9 - 1 at light (RJH); DORSET (9): Portland Bird Observatory, singles recorded at mv light on 10.6; 13.6; 15.9 (MC); EAST SUSSEX (14): Litlington, 19.6 - 6 (L. Rowney per CRP); Peacehaven, 17.6 - 5 (CRP); SOUTH ESSEX (18): Bradwell-on-Sea, 7.7 to 5.8 - larvae found (AJD & SD); DERBYSHIRE (57): Eastwood, undated - 1 seen ovipositing on common cleavers *Galium aparine* (Elliot & Wright 1997); SOUTH-EAST YORKSHIRE (61): Spurn, 11.9 - 1 found at rest under a light (BS); CHANNEL ISLANDS (113): Guernsey, Le Chene, 18.6 - 1 to light (TNDP per Austin (1997)).

[Spurge Hawk-moth *Hyles euphorbiae* (Linnaeus) [I]

Locality not given, undated (K. Bailey per E.W. Classey); SOUTH DEVON (3): Dawlish Warren, 11.9 (example not retained) (M. Meehan per RMc); Exeter, 6 (per J. Woodland & Mrs J. Woodland); EAST SUSSEX (14): Seaford, 22.9 - 1 at rest Mr Edmunds per per SC per CRP), considered by CRP to require confirmation.]

Bedstraw Hawk-moth *Hyles gallii* (Rottemberg) [I]

NORTH ESSEX (19): Jaywick, 18.7 (JW per BG[2]); Wivenhoe, 20.7 (M. Jackson per BG[2]); EAST SUFFOLK (25): Bromswell near Felixestowe, 18.6 - 3 seen feeding at honeysuckle (per JN per Waring (1996c)); Tunstall Forest, 9.8 - about 20 larvae (N. Sherman per Waring (1996c)); 12.8 - 2 larvae (JN per Waring (1996c)); Walberswick, 23.7 (DB); WEST NORFOLK (28): Holkham, 22.7 (Anon 1996a); Holkham NNR, 21.7 - (MT[2] & TC) (possibly same as previous record); GLAMORGAN (41): Manselfield, Swansea, 16.7 (per DG); NORTH LINCOLNSHIRE (54): Gibraltar Point, 19.8 (KMSW per RJ); SHETLAND ISLANDS (112): Eswick, 11.8 (TDR per Pennington (1997)); Fair Isle, 5.7 (Pennington 1997); Norwick, Unst, 5.8 to 12.8 - 1 (Pennington 1997).

Summary: (19): 2; (25): 4 & c.22 larvae; (28): 1 (or 2); (41): 1; (54): 1; (112): 3.

Striped Hawk-moth *Hyles livornica* (Esper) [I]

WEST CORNWALL (1): Bass Point, The Lizard, 14.9 (CH); Church Cove, The Lizard, 22.9 (MT[2]); Mullion, 22.8 (PAC); St Agnes, Isles of Scilly, 5.6; 7.6; 18.8 (JH & MH); The Lizard, 19.8 - 2 (DB, AG & RCK); SOUTH DEVON (3): Countess Wear, Exeter, 6.6; 8.6 (PB[2] per RMc); Prawle Point, 7.6 - 13 (RMc); Teignmouth, 21.8; 19.9 (RMc); West Hill, Ottery St Mary, 2.9; 3.9 - 2 (PB); NORTH DEVON (4): Coryton, Okehampton, 8.6 (Ms J. Hale per RMc); NORTH SOMERSET (6): Leigh Woods, undated - by day (Barnett, Edmondson & Evans 1996a); DORSET (9): Chalbury, 17.6 (S. Amos per PD); Holt Heath, 19.6 (M.M. Brooks); Portland Bird Observatory, 12.6; 18.8 to 21.8 - 3; 15.9 (MC); Swanage, 6.6 - 2 (AG); 7.6 - 8 or 9 (A. Kolaj per SPC); West Bexington, 6.6 - 2; 7.6; 14.6; 6.9; 16.10 (RE per PD); ISLE OF WIGHT (10): Binstead, 14.6 (BJW); Chale, 13.8 - in a conservatory (BJW); SOUTH HAMPSHIRE (11): Warsash, 5 or 6.6 (PMP per BG); WEST SUSSEX (13): Atherington, 9.6 (A.J.L. Kemp per CRP); Bognor Regis, 12.8 (Mr Eaves per Waring (1996c)); EAST SUSSEX (14): Crowborough, undated (MJS per SPC); Peacehaven, 1.9 (CRP); EAST KENT (15): Kingston, Canterbury, 14.6 (K. Elks); Herne Bay, 8.6; 22.8 (BM); Dungeness, 7.6 (BFS); 10.6 (KR per SPC); 18.6 (DW per SPC); 25.6 (SPC); Lydd-on-Sea, 29.4 (SPC); New Romney, 11.6; 14.6 (KR per SPC); SURREY (17): Milford, 8.6 (DWB per GAC); Nutfield, 7.6 (PAC); SOUTH ESSEX (18): North Chingford, 7.6 (B. Pateman per BG[2]); OXFORDSHIRE (23): Bagley Wood, 18.6 - at flowers of honeysuckle (R. Louch & J. Gosling per Waring (1996b)); BUCKINGHAMSHIRE (24): Chesham Bois, 7.6 (JEC & JMS); EAST NORFOLK (27): Caister, early 6 - 1 found in an outbuilding (J. Hall per Hipperson (1996)); EAST GLOUCESTERSHIRE (33): Longney, 14.6; 23.6 (AS & SS per RG); SHROPSHIRE (40): near Quatford, 26.7 - 1 larva (4th instar, per APF) found on rosebay willowherb *Chamaenerion angustifolium* (Foster 1997); GLAMORGAN (41): Manselfield, Swansea, 20.6 (per DG); CHANNEL ISLANDS (113): Guernsey, L'Ancresse, 8.6; 18.8 (Austin 1997).

Summary: (1): 8; (3): 20; (4): 1; (6): 1; (9): 23 (or 24); (10): 2; Hants.: 1; (13): 2; (14): 2; (15): 10; (17): 2; (18): 1; (23): 1; (24): 1; (27): 1; (33): 2; (40): 1 larva; (41): 1; (113): 2.

Silver-striped Hawk-moth *Hippotion celerio* (Linnaeus) [I]

SOUTH WILSTSHIRE (8): Pewsey, 8.6 (Prof. H. Kay per EGS & MHS); SOUTH HAMPSHIRE (11): Fordingbridge, 15.6 (NH per BG); ANGUS (90): Forfar, 29.10 (Mrs S.M. Mather per L.E. Rogers).

LYMANTRIDAE

Brown-tail *Euproctis chrysorrhoea* (Linnaeus) [I?/V?]

WEST CORNWALL (1): St. Agnes, Isles of Scilly, 17.7; 19.7 - 33; 20.7 - 8; 22.7 - 6 (JH & MH); SOUTH-EAST YORKSHIRE (61): Spurn, 7.8; 10.8; 11.8 (BS); ANGUS (90): Lunan Bay, 7.8 - 1 male (Goater 1997).

Black Arches *Lymantria monacha* (Linnaeus) [I?/V?]

CHANNEL ISLANDS (113): Guernsey, Le Chene, 16.8 (TNDP per Austin (1997)).

Gypsy Moth *Lymantria dispar* (Linnaeus) [I]

SOUTH DEVON (3): Dawlish, 18.8 (AR per RMc); Plymouth, 10.8 (A. Holgate per RMc); DORSET (9): Chardstock, 22.8 - 1 very worn example (AJ per RMc); EAST SUSSEX (14): Ringmer, 19.8 (AB[2] per CRP); CHANNEL ISLANDS (113): Guernsey, Le Chene, 18.8 (TNDP per Austin (1997)).

ARCTIIDAE

Hoary Footman *Eilema caniola* (Hübner) [I?/V?]

DORSET (9): Portland Bird Observatory, 15.8 (MC); ISLE OF WIGHT (10): Bonchurch, 13.8 (JH[2]); Freshwater, 11.8 (SAKJ).

Four-spotted Footman *Lithosia quadra* (Linnaeus) [I?/V?]

DORSET (9): Bere Regis, 8.8 (S. Barrett per PD).

Speckled Footman *Coscinia cribraria arenaria* Lempke [I]
SOUTH ESSEX (18): Ongar, 6.8 (Woiwod *et al* 1996).

Crimson Speckled *Utetheisa pulchella* (Linnaeus) [I]
WEST CORNWALL (1): Penrose, 29.6; 13.7 (RH[3] per MT[2]); Poltesco, 9.6; 15.6; 23.7 (RH[3] per MT[2]); Ventomgimps (Callestick), 1.8 (S. Hutchings per BFS).

Jersey Tiger *Euplagia quadripunctaria* (Poda) [I?/R(t)?/V?]
DORSET (9): Eype's Mouth, 19.8 - 1 ab. *lutescens* (APF); ISLE OF WIGHT (10): Bonchurch, 8 - 15 (JH[2] per SAKJ); Freshwater, 30.8; 2.9 (SAKJ); EAST SUSSEX (14): Eastbourne, 18.8 - 1 female (DD & JP per CRP).

NOLIDAE

Kent Black Arches *Meganola albula* ([Denis & Schiffermüller]) [I?/V?]
EAST NORFOLK (27): Rockland St. Mary, 7.8 (CR per Hipperson (1996)); Winterton, 17.8 (per Hipperson 1996); Winterton Dunes, 10.8 (MT[2]); WEST NORFOLK (28): Eccles, 26.7 (NB per Hipperson (1996)); SOUTH-EAST YORKSHIRE (61): Bridlington, 9.8 (ASE per SPC); Rudston, 12.8 (ASE per SPC).

Scarce Black Arches *Nola aerugula* (Hübner) [I]
EAST SUSSEX (14): Rye Harbour, 28.7 (DJF per CRP); EAST KENT (15): Dymchurch, 25.7 (JO per SPC).

NOCTUIDAE

Coast Dart *Euxoa cursoria* (Hufnagel) [I?/V?]
EAST KENT (15): Herne Bay, 27.7 (BM).

Great Dart *Agrotis crassa* (Hübner) [I]
Note: Channel Islands records not included.
DORSET (9): Portland Bird Observatory; 5.8 (MC); ISLE OF WIGHT (10): Freshwater, 12.8 (SAKJ); SOUTH HAMPSHIRE (11): Beaulieu, 8.8 (BIJ per BG).

Purple Cloud *Actinotia polyodon* (Clerck) [I]
EAST SUSSEX (14): Crowborough, 11.6 (MJS per CRP); EAST KENT (15): Dungeness, 18.8 (JB per SPC).

Pale-shouldered Cloud *Chloantha hyperici* ([Denis & Schiffermüller]) [I]
EAST KENT (15): Dungeness, 20.8 (Walker 1997).

Great Brocade *Eurois occulta* (Linnaeus) [I/V?]
DORSET (9): Swanage, 19.8 (R. Cox per PD); ISLE OF WIGHT (10): Whitwell, 20.8 (S. Colenutt per SAKJ); SOUTH HAMPSHIRE (11): Cosham, 2.9 (TJJ per BG); NORTH HAMPSHIRE (12): Bentley, 7.8 (M. Christopher per BG); EAST SUSSEX (14): Icklesham, 20.8 (IH per CRP); Ringmer, 31.8; 2.9 (AB[2] per CRP); Rye Harbour, 14.8 - 2; 17.8 (DJF per CRP); EAST KENT (15): Herne Bay, 15.8 to 3.9 - 10 (including 16.8 - 4) (BM); Densole, 14.8; 31.8 (TR); Dungeness, 15.8; 16.8 (DW per SPC); 16.8; 2.9 (JB per SPC); 15.8; 3.9 (KR per SPC); Dymchurch, 18.8; 30.8 - 2 (JO per SPC); Greatstone, 17.8; 2.9 (BB per SPC); Kingsdown, 6.9 (DB); Littlestone, 3.9 (KR per SPC); Lydd, 2.9 (KR per SPC); New Romney, 17.8 - 2; 18.8 - 2; 22.8 (KR per SPC); Snargate, 4.9 - 1 to wine rope (TR); SURREY (17): South Croydon, 2.9 (GAC); SOUTH ESSEX (18): Bradwell-on-Sea, 16.8 to 6.9 - 15 (inc. 16.8 - 6) (AJD & SD); Theydon Bois, 30.8 (J. Green per Plant (1997)); NORTH ESSEX (19): Beaumont-cum-Moze, 20.8 (JBF per BG[2]); Dovercourt, 17.8 (CG per BG[2]); Jaywick, 19.6 (JY per BG[2]); 15.8 (JW per BG[2]); Saffron Walden, 1.9 (given as 2 per BG[2]); 3.9 (AME per SPC); St Osyth, 2.9 (RWA per BG[2]); HERTFORDSHIRE (20): Easneye, 15.8 (M. Pledger per Plant (1997)); MIDDLESEX (21):

Hampstead, 2.9 (RAS); BUCKINGHAMSHIRE (24): Lavendon, 16.8 - 2; 17.8 (G. Moss per GEH); Slough, 30.8 (Hayward 1998); EAST NORFOLK (27): Barnham Broom, 16.8; 19.8 (JG per Hipperson (1996)); Hainford, 16.8 (Hipperson 1996); North Tuddenham, 16.8 (B. Pummell per Hipperson (1996)); Sheringham Park, 14.8 (K. Zealand per Hipperson (1996)); Wheatacre, 15.8; 16.8; 30.8 (RH per Hipperson (1996)); Winterton, 17.8 - 2 (per Hipperson (1996)); WEST NORFOLK (28): Eccles, 17.8 (NB per Hipperson (1996)); Holkham NNR, 14.8 - 9; 5.9 - 3 (MT[2] & TC); CAMBRIDGESHIRE (29): Welches Dam RSPB, 3.9 (RP); EAST GLOUCESTERSHIRE (33): Cheltenham, 12.9 (R. Homan per RG); WARWICKSHIRE (38): Rugby, 2.9 (Dr D. Porter per DB); GLAMORGAN (41): Llancadle, nr. Barry, 4.7 (per DG); NORTH LINCOLNSHIRE (54): Gibraltar Point, 26.7 (DB); SOUTH-EAST YORKSHIRE (61): Kilnsea, undated (P.A. Crowther per BS); CUMBERLAND (70): Cockermouth, 23.9 (T. Dale per DWK); Milton, 19.8 (G.R. Naylor per DWK); ORKNEY ISLANDS (111): Craigiefield, 8.8 (per SVG); North Ronaldsay, 29.8 (MG per SVG); Quoyberstane, 13.8 to 20.8 - 4 (SVG); Smyril, 16.8 (ERM per SVG); SHETLAND ISLANDS (112): Baltasound, 6.8; 7.8; 12.8 to 14.8 - 20; 25.8 - 2 (Pennington 1997); Eswick, 12.8 to 14.8 - 108; 26.8; 27.8; 29.8; 31.8 (Pennington 1997); Norwick, 12.8 to 14.8 - 32 (Pennington 1997); Ocraquoy, 12.8 to 14.8 - 20 (Pennington 1997); Upper Toft, Fetlar, 12.8 (Pennington 1997); Veensgarth, 12.8 to 14.8 - 4 (Pennington 1997); Voehead, 12.8 to 14.8 - 2; 29.8 (Pennington 1997); (also a few other records, but details not given. A total of 345 recorded over the year) (MGP).

Summary: (9): 1; (10): 1; (11): 1; (12): 1; (14): 6; (15): 32; (17): 1; (18): 16; (19): 7 (or 8); (20): 1; (21): 1; (24): 4; (27): 10; (28): 13; (29): 1; (33): 1; (38): 1; (41): 1; (54): 1; (61): 1; (70): 2; (111): 7; (112): 345.

White Point *Mythimna albipuncta* ([Denis & Schiffermüller]) [I]

WEST CORNWALL (1): St. Agnes, Isles of Scilly, 14.9 (JH & MH); The Lizard, 9.10 (PB); SOUTH DEVON (3): Beer, 20.8 - 2 (BH); Branscombe, 12.7 (PB); 12.7 - 2 (RMc); Dawlish, 21.8 (AR per RMc); Prawle Point, 20.8 (RMc); DORSET (9): Gaunt's Common, 19.8 (PD); Portland Bird Observatory, 16.8 to 15.9 - 41 (MC); West Bexington, 12.8; 16.8; 18.8 - 2 (RE per PD); ISLE OF WIGHT (10): Binstead, 23.8; 5.9 (BJW); Bonchurch, 18.8 (JH[2]); Freshwater, 14.8; 22.8; 28.8; 2.9; 6.9; 24.9 (SAKJ); Knowles Farm, 20.6 (TS per BG); SOUTH HAMPSHIRE (11): Beaulieu, 21.6 to 2.9 - 6 (BIJ per BG); Hayling Island, 31.8 (PIVS per BG); Park Shore, 5.9 (BG); Southsea, 31.8 (JRL per BG); Warsash, 8 - 4; 9 - 5 (PMP per BG); WEST SUSSEX (13): Pagham Harbour, 2.9 (JTR per CRP); Walberton, 22.8; 3.9; 22.9 (JTR per CRP); EAST SUSSEX (14): Holywell, 13.8 - 2 (CRP & MSP); Icklesham, 14.8; 22.8; 30.8 (IH per CRP); Peacehaven, 14.8; 22.8; 26.8 (CRP); Pevensey, 2.9 (SC per CRP); Rye Harbour, 19.9; 11.8; 13.8 - 2; 18.8; 19.8 - 2; 20.8 - 2; 21.8 (DJF per CRP); EAST KENT (15): Densole, 1.6; 22.8; 23.8; 24.8; 30.8 (TR); Dungeness, 7.8; 15.8; 16.8; 17.8; 19.8 - 3; 22.8; 14.9 (DW per SPC); 7.7; 8.7; 16.8; 19.8 (JB per SPC); 10.6; 19.8 - 3; 21.8 - 4; 22.8 - 2; 23.8; 25.8; 26.8 - 2; 28.8; 30.8; 1.9; 11.9 (KR per SPC); 14.8; 23.8; 24.8 - 2; 29.8 (SPC); 1.9 (TR); Greatstone, 11.6; 20.8; 22.8 - 2; 16.9 (BB per SPC); Herne Bay, 7.6 to 14.10 - 7 (including 31.8 - 2) (BM); Kingsdown, 6.9 - 2 (DB); Littlestone, 7.6 (KR per SPC); Lydd, 11.8; 26.8 - 2 (KR per SPC); Lydd-on-Sea, 19.8 (SPC); New Romney, 9.8; 20.8; 21.8; 25.8; 15.9 (KR per SPC); SOUTH ESSEX (18): Bradwell-on-Sea, 11.6 to 22.9 - 12 (AJD & SD); NORTH ESSEX (19): Copperas Wood, 28.9 (PS[2] per BG[2]); Jaywick, 26.8 (JY per BG[2]); EAST SUFFOLK (25): Landguard, 9 (Odin 1997); EAST NORFOLK (27): Norwich, 23.8 (R. Moore per Hipperson (1996)); WEST NORFOLK (28): Stiffkey, 27.7 (TC per Hipperson (1996)); SOUTH LINCOLNSHIRE (53): Rippingale Fen, 16.8 (L. Lamin per RJ); CHANNEL ISLANDS (113): Guernsey, 5 sites on 19 nights between 5.6 and 19.10 (Austin 1997); Sark, 27.6 (RL & ML per Austin (1997)).

Summary: (1): 2; (3): 7; (9): 46; (10): 10; (11): 18; (13): 4; (14): 19; (15): 65; (18): 12; (19): 2; (25): 1; (27): 1; (28): 1; (53): 1; (113): 20+.

Delicate *Mythimna vitellina* (Hübner) [I]

WEST CORNWALL (1): Bass Point, The Lizard, 14.9 (CH); Church Cove, The Lizard, 25.4; 6.10 - 16; 20.10 - 6 (128 recorded between 25.4 to 20.10; 48 in 9 and 79 in 10) (MT[2]); Coverack,

The Lizard, 11.10 - 4; 12.10; 13.10 - 3 (DB); Kennack Sands, 21.10 - 5 (JHC); Meadow Dean, Ruan Minor, 21.10 - 4; 22.10 - 2; 23.10 (JHC); Mullion, 18.8; 19.8 - 2; 20.8 (PAC); St Agnes, Isles of Scilly, 25.4; 27.4; 5.6 - 5; 6.6; 11.6; 17.6; 20.6; 24.6; 26.6; 3.7; 8.7; 19.7; 26.8; 31.8 - 2; 5.9 - 3; 10.9; 13.9 - 3; 14.9; 19.9 - 21; 21.9 - 17; 27.9 - 4; 2.10 - 2; 6.10 - 2; 9.10 - 2; 14.10; 19.10; 22.10; 29.10 (JH & MH); The Lizard, 19.8 - 8 (DB, AG & RCK); 23.9 - 7; 25.9 - 4; 26.9 - 10 (DB & MT²); 9.10 (PB); SOUTH DEVON (3): Abbotskerswell, 15.5; 26.10 (BH); Branscombe, 19.10 - 8 (RMc); Countess Wear, Exeter, 7.10; 13.10 (PB² per RMc); Dawlish, 23.9; 2.10; 7.10; 10.10 - 2; 11.10; 12.10; 14.10 - 10; 16.10 - 7; 17.10 - 6; 21.10 - 5; 22.10 (AR per RMc); Prawle Point, 21.9 - 6 (RMc); Teignmouth, 27.9; 19.10 (RMc); West Hill, Ottery St Mary, 20.9, thereafter most nights until end 10 (PB); SOUTH SOMERSET (5): Bishops Lydeard, 3.10; 14.10; 28.10 (MDB); SOUTH WILTSHIRE (8): Steeple Ashton, 25.10 (EGS & MHS); DORSET (9): Durlston, 16.10 (JEC); 22.10 - 6 (DB & AG); 23.10 - 2; 24.10 - 3 (DB); 23.10 - 3 (PD); Portland Bird Observatory, 7.6; 13.6 - 2; 11.8 to 22.10 - 55 (MC); St Alban's Head, 6.10 - 2 (PD); Studland, 23.10 - 2; 24.10 - 5 (DB); West Bexington, 25.4; 20.9 - 2; 21.9 - 2; 30.9 - 2; 1.10; 2.10 - 2; 3.10; 4.10; 5.10; 6.10 - 2; 7.10 - 4; 8.10 - 3; 10.10 - 5; 16.10 - 10; 18.10 - 2; 19.10; 29.10 (RE per PD): ISLE OF WIGHT (10): Binstead, 22.10 - 2 (BJW); Freshwater, 10.6 to 25.10 - 32 (SAKJ); SOUTH HAMPSHIRE (11): Brockenhurst, 12.10 (JEC); Cosham, 13.10 (TJJ per BG); Kings Somborne, 12.10; 13.10 (TJN per BG); Southsea, 23.10 (JRL per BG); Sparsholt, 19.10 - 2; 28.10 (RAB); Warsash, 17.10; 20.10 (PMP per BG); NORTH HAMPSHIRE (12): Selborne, 18.10; 23.10 (AEA per BG); WEST SUSSEX (13): Atherington, 23.10 - 1 to ivy blossom (MSP); Climping, 23.10 - 2 (DB); Walberton, 22.10; 27.10; 5.11 (JTR per CRP); EAST SUSSEX (14): Icklesham. 24.10 - 2 (IH per CRP); Peacehaven, 3.10; 17.10; 18.10 (CRP); Rye Harbour, 24.7; 30.9; 20.10; 24.10 (DJF per CRP); EAST KENT (15): Densole, 12.10; 13.10; 14.10; 17.10 (TR); Dungeness, 1.10 (JB per SPC); 28.9; 29.9 - 2; 30.9; 13.10; 14.10 - 4; 15.10 - 2; 21.10; 24.10; 25.10 - 2 (KR per SPC); 17.10; 24.10; 25.10 (SPC); Folkestone Warren, 24.10 - 3 (TR); Greatstone, 1.10 (BB per SPC); Herne Bay, 8.10 to 5.11 - 11 (including 24.10 - 3) (BM); Littlestone, 10.10 (KR per SPC); Lydd, 26.9; 30.9; 13.10 - 2; 19.10 - 2; 20.10; 24.10 (KR); New Romney, 12.8; 25.9; 30.9; 14.10; 20.10 - 2 (KR per SPC); SURREY (17): Milford, 13.10; 21.10 (DWB per GAC); SOUTH ESSEX (18): Bradwell-on-Sea, 17.10; 19.10; 23.10; 27.10 (AJD & SD); NORTH ESSEX (19): Mistley, 17.10 - 2 (ICR per BG²); WARWICKSHIRE (38): Charlecote, 24.10 (DB); ISLE OF MAN (71): Dhoon Maughold, 15.10; 17.10 (LK per GDC); CHANNEL ISLANDS (113): Guernsey, 6 sites on 32 night between 8.6 and 2.11 (Austin 1997); Herm, 8.10 (PHS per Austin (1997)); Sark, 24.6 (RL & ML per Austin (1997)).

Summary: (1): 262; (3): 58+; (5): 3; (8): 1; (9): 123; (10): 34; (11): 10; (12): 2; (13): 6; (14): 9; (15): 53; (17): 2; (18): 4; (19): 2; (38): 1; (71): 2; (113): 34+.

L-album Wainscot *Mythimna l-album* (Linnaeus) [I?/V?/R?]

Note: A record from outside Dungeness, East Kent to Cornwall and not including the Channel Islands.

EAST KENT (15): Folkestone Warren, 24.10 - 3 (TR).

White-speck *Mythimna unipuncta* (Haworth) [I]

WEST CORNWALL (1): Bass Point, The Lizard, 14.9 - 2 (CH); Church Cove, The Lizard, 19.9 - 4; 8.11 (50 recorded between the two dates; 23 in 9; 26 in 10) (MT²); Coverack, The Lizard, 11.10; 12.10 (DB); Kennack Sands, 21.10 - 2 (JHC); Meadow Dean, Ruan Minor, 19.10 - 3; 20.10 - 5; 21.10 - 7; 22.10 - 5 (JHC); Mullion, 20.8; 24.8 (PAC); St. Agnes, Isles of Scilly, 18.1; 25.6 - 1 by day; 6.7; 17.8; 18.8; 24.8; 26.8 - 3; 31.8 - 3; 3.9 - 2; 5.9; 7.9 - 3; 10.9 - 3; 13.9 - 13; 14.9 - 5; 19.9 - 3; 21.9; 27.9 - 3; 2.10 - 2; 6.10 - 2; 9.10; 18.10 - 3; 19.10 - 3; 22.10 - 6; 23.10 - 2; 29.10 (JH & MH); The Lizard, 18.8 - 5; 19.8 - 14 (DB, AG & RCK); 20.8 (DB); 23.9 - 2; 24.9 - 2; 25.9 - 2; 26.9 - 4 (DB & MT²); 9.10 (PB); SOUTH DEVON (3): Abbotskerswell, 7.10 (BH); Countess Wear, Exeter, 18.9; 19.9; 22.10 (PB² per RMc); Dawlish, 16.8; 31.8; 5.9; 10.10 (P. Franghiadi per RMc); 22.9; 2.10; 10.10 - 2 (AR per RMc); Prawle Point, 20.8; 21.9 - 2 (RMc); Starcross, 10.6 (AHD); Teignmouth, 1.9; 23.9 (RMc); SOUTH SOMERSET (5): Bishops Lydeard, 22.9 (MDB); DORSET (9): Durlston, 22.10 (DB & AG); Gaunt's Common, 23.10 (PD); Portland Bird Observatory,

15.6 to 24.6 - 5; 22.8 to 9.10 - 24 (MC); St Alban's Head, 6.10 (PD); West Bexington, 22.8; 10.9; 19.9; 20.9; 22.9; 26.9; 2.10 - 3; 4.10 - 2; 7.10; 8.10 - 2 (RE per PD); ISLE OF WIGHT (10): Binstead, 31.10 (BJW); Freshwater, 21.10; 22.10; 24.10 - 2 (SAKJ); Freshwater, The Causeway, 24.6 (D.B. Wooldridge per BG); SOUTH HAMPSHIRE (11): Woolston, 20.9 (ARC per BG); EAST SUSSEX (14): Rye Harbour, 20.10 (DJF per CRP); EAST KENT (15): Dungeness, 13.10; 14.10; 19.10; 20.10 - 2 (KR per SPC); Greatstone, 16.10 (BB per SPC); Herne Bay, 15.10; 16.10 (BM); SOUTH ESSEX (18): Bradwell-on-Sea, 7.10; 14.10 (AJD); NORTH ESSEX (19): Mistley, 27.7 (ICR per BG[2]); EAST SUFFOLK (25): Landguard, 9 - 3 (Odin 1997); WESTMORLAND (69): South Walney, 7.9 (WM per DWK); ISLE OF MAN (71): Calf of Man, 2.9 (TB); Dhoon Maughold, 6.10; 7.10; 15.10 - 6; 15.11; 16.11 - 3 (LK per GDC) CHANNEL ISLANDS (113): Guernsey, L'Ancresse, 20.10 (Austin 1997); La Broderie, 6.9; 12.9; 9.10; 11.10; 24.10 (PC per Austin (1997)); Le Chene, 12.9 (TNDP per Austin (1997)).
Summary: (1): 174; (3): 18; (5): 1; (9): 46; (10): 6; (11): 1; (14): 1; (15): 8; (18): 2; (19): 1; (25): 3; (69): 1; (71): 13; (113): 7.

The Cosmopolitan *Mythimna loreyi* (Duponchel) [I]

WEST CORNWALL (1): Church Cove, The Lizard, 27.9 - 2; 2.10; 6.10 - 3; 9.10 - 4; 10.10; 19.10; 24.10 (MT[2]); Coverack, 25.9; 26.9 (MT[2]); Kynance, 19.9 (MT[2]); Meadow Dean, Ruan Minor, 21.10 - 1 female; 22.10 - 2 males; 23.10 - 2 males; 24.10 - 1 female (JHC); St Agnes, Isles of Scilly, 6.6 (JH & MH); The Lizard, 19.8 - 2 (DB, AG & RCK); 25.9; 26.9 (DB & MT[2]); SOUTH DEVON (3): Countess Wear, Exeter, 7.10 (PB[2] per RMc); Dawlish, 4.9; 5.9 (AR per Rmc) (possibly only one record); SOUTH SOMERSET (5): Staplegrove, Taunton, 16.9 (JMc); DORSET (9): Guant's Common, 12.10 (PD); Portland Bird Observatory, 13.6; 11.8 to 9.10 - 19 (MC); St Alban's Head, 6.10 (PD); West Bexington, 3.9; 2.10; 11.10 (RE per PD); ISLE OF WIGHT (10): Freshwater, 1.9 (SAKJ).
Summary: (1): 27; (3): 2 (or 3); (5): 1; (9): 25; (10): 1.

Toadflax Brocade *Calophasia lunula* (Hufnagel) [I?]

SOUTH HAMPSHIRE (11): Browndown/Alver Valley, 3.8 (SS[2] & DW[2] per SPC); Gosport, 18.8 (D. Walker per JRL per BG).

Golden-rod Brindle *Lithomoia solidaginis* (Hübner) [I?]

NORTH ESSEX (19): Great Chesterford, 2.9 (JR); HERTFORDSHIRE (20): Bishops Stortford, 1.9 - 1 male (JR[2] per CWP); Broxbourne Wood, 8.9 - 1 male (P. Jeffery per CWP); WEST NORFOLK (28): Docking, 31.8 (R. Skeen per Hipperson (1996)).

Red Sword Grass *Xylena vetusta* (Hübner) [I?]

EAST SUFFOLK (25): Landguard, 9 (Odin 1997); EAST NORFOLK (27): Holt, around 12.5 (per MT[2]); WEST NORFOLK (28): Swanton Novers Great Wood, nr Fakenham, 12.5 (MT[2]).

Flame Brocade *Trigonophora flammea* (Esper) [I]

Note: Channel Islands records not included.
DORSET (9): Durlston, 14.10 (JEC); ISLE OF WIGHT (10): Freshwater, 14.10 (SAKJ); SOUTH HAMPSHIRE (11): Sandy Point, Hayling Island, 14.10 (P. Selby per BG); EAST SUSSEX (14): Eastbourne, 23.10 (DD & JP per CRP).

Red-headed Chestnut *Conistra erythrocephala* ([Denis & Schiffermüller]) [I]

WEST SUSSEX (13): Atherington, 25.10 - 1 female to ivy blossom (MSP); CHANNEL ISLANDS (113): Jersey, 12.6 to 14.6 - 1 (Woiwod et al 1996).

Marsh Dagger *Acronicta strigosa* ([Denis & Schiffermüller]) [I]

EAST SUSSEX (14): Rye Harbour, 22.7 (DJF per Waring (1996c)).

Scarce Dagger *Acronicta auricoma* ([Denis & Schiffermüller]) [I]

SOUTH HAMPSHIRE (11): Warsash, 7.8 to 9.8 - 1 (PMP per BG); EAST SUSSEX (14): Icklesham, 14.8; 15.8 (IH per CRP); EAST KENT (15): Sholden, 8.8 (Davey 1997).

Reed Dagger *Simyra albovenosa* (Goeze) [I?/V?]

SOUTH-EAST YORKSHIRE (61): Spurn, 19.7 (BS).

Tree-lichen Beauty *Cryphia algae* (Fabricius) [I]

ISLE OF WIGHT (10): Ninham, 23.8 (JR); SOUTH HAMPSHIRE (11): Solent Court [Warsash], 7.8 to 12.8 - 4; 2.9 (PMP per BFS); WEST SUSSEX (13): Walberton, 5.8 (JTR per CRP); EAST SUSSEX (14): Holywell, 13.8 (MSP & CRP); Peacehaven, 22.8 (CRP); Rye Harbour, 14.8 (DJF per CRP); EAST KENT (15): Dungeness, 25.8 (KR per SPC); Littlestone, 20.8 (KR per SPC); Lydd, 14.8 (KR per SPC); HERTFORDSHIRE (20): Bishops Stortford, 19.8 - 1 male (JR^2 & J. Fish per CWP); CHANNEL ISLANDS (113): Guernsey, La Croix, Forest, 31.8 (J. Brehaut per Austin (1997)); Le Chene, 19.8 (TNDP per Austin (1997)).
Summary: (10): 1; (11): 5; (13): 1; (14): 3; (15): 3; (20): 1; (113): 2.

Marbled Grey *Cryphia raptricula* ([Denis & Schiffermüller]) [I]

EAST KENT (15): Dungeness, 22.7 (K. Palmer per Waring (1996c)); 9.8 (SPC).

The Orache *Trachea atriplicis* (Linnaeus) [I]

Note: Channel Islands records not included.
ISLE OF WIGHT (10): Freshwater, 9.8 (SAKJ).

Angle-striped Sallow *Enargia paleacea* (Esper) [I/V?]

EAST SUSSEX (14): Rye Harbour, 19.8 (DJF per CRP); EAST KENT (15): Herne Bay, 17.8 (BM); Dungeness, 1.9 (TR); WEST NORFOLK (28): Swanton Novers Great Wood, nr. Thursford, 7.9 (MT^2); SHETLAND ISLANDS (112): Baltasound, 12.8 (MGP); Eswick, 12.8 - 3 (MGP); Unst, Skaw, 12.8 - at rest by day (MGP).
Summary: (14): 1; (15): 2; (28): 1; (112): 5.

Scarce Brindle *Apamea lateritia* (Hufnagel)

SHETLAND ISLANDS (112): Norwick, 11.8 - to sugar; 12.8 (MGP).

Lyme Grass *Chortodes elymi* (Treitschke) [I?/V?]

ORKNEY ISLANDS (111): Craigiefield, 13.8 (SVG).

Mere Wainscot *Chortodes fluxa* (Hübner) [I?/V?]

DORSET (9): Portland Bird Observatory, 5.8 - 3 (MC); SOUTH HAMPSHIRE (11): Gosport, 3.8 (Davey 1997); EAST KENT (15): Herne Bay, 5.8 (BM).

Dumeril's Luperina *Luperina dumerilii* (Duponchel) [I]

DORSET (9): Portland Bird Observatory, 14.9 (MC).

Scarce Arches *Luperina zollikoferi* (Freyer) [I]

WEST SUSSEX (13): Pagham Harbour, 2.9 (JTR per CRP).

Small Mottled Willow *Spodoptera exigua* (Hübner) [I]

Summary only: The vice-county number is given in brackets, followed by the number of individuals sighted in each vice-county (county). Where no numbers were given for an individual record, it was taken to be 1. Hence, the totals are approximate. This is followed by the monthly representation of the records. In several cases it was impossible to assign a given record to an individual month. As with the totals for the vice-counties, the monthly totals are, therefore, approximate.
Summary: (1): 860; (3): 216+; (5): 27; (6): 1; (7): 2; (9): 998; (10): 53; (11): 95+; (12): 23+; (13): 30; (14): 58; (15): 177; (17): 9; (18): 50; (19): 3; (20): 1; (21): 1; (22): 1; (24): 2; (25): 2; (27): 9; (30): 1; (31): 1; (33): 5; (34): 2; (38): 20; (41): 6; (44): 4; (48): 1; (53): 2; (54): 3; (61): 4; (63): 1; (69): 2; (71): 3; (72): 1; (111): 7; (112): 7; (113): 140+.
April: 1; June: 766+; July: 84+ ; August: 1,658+; September: 65+; October: 24+; November: 1.
Earliest date: SOUTH HAMPSHIRE (11): Titchfield Haven NNR, 16.4 (Waring 1996a).

Latest date: EAST KENT (15): Herne Bay, 1.11 (BM).
Possibly significant records: WEST CORNWALL (1): Mullion, 21.8 - 16 (PAC); St Agnes, Isles of Scilly, 19.6 - 94; 22.6 - 67; 24.6 - 55; 26.6 - 43; 2.8 - 30; 4.8 - 49; 7.8 - 18; 12.8 - 64; 13.8 - 24; 15.8 - 69; 17.8 - 43; 18.8 - 35 (JH & MH); The Lizard, 18.8 - 45; 19.8 - 80 (DB, AG & RCK); SOUTH DEVON (3): Dawlish, 5.8 - 22; 19.8 - 51; 22.8 - 21 (AR per RMc); Prawle Point, 7.6 - 20 + (RMc); Starcross, 12.8 - 21 (AHD); DORSET (9): Portland Bird Observatory, 6.6 to 6.10 - 749, a peak of 96 on 19.6 (including 21.6 - 35; 24.6 - 40; 26.6 - 46; 27.6 - 22; 5.8 - 20; 7.8 - 25; 11.8 - 18; 12.8 - 28; 13.8 - 46; 14.8 - 33; 15.8 - 23; 16.8 - 43; 17.8 - 18; 18.8 - 19; 19.8 - 20; 31.8 - 17 (MC per PD); Trigon, 17.8 - 15 (PD); West Bexington, 18.8 - 27; 19.8 - 17 (RE per PD); Weymouth, 19.6 - 21 (PHS per PD); CHANNEL ISLANDS (113): Guernsey, La Broderie, 21.6-29 (PC per Austin (1997)).

Scarce Bordered Straw *Heliocoverpa armigera* (Hübner) [I]

Summary only: The vice-county number is given in brackets, followed by the number of individuals sighted in each vice-county (county). Where no numbers were given for an individual record, it was taken to be 1. Hence, the totals are approximate. This is followed by the monthly representation of the records. In several cases it was impossible to assign a given record to an individual month. As with the totals for the vice-counties, the monthly totals are, therefore, approximate.
Summary: (1): 54; (3): 30+; (5): 6; (6): 1; (7): 1; (9): 85; (10): 14; (11): 28; (12): 12; (13): 6; (14): 22; (15): 38; (17): 4; (18): 5; (20): 1; (24): 1; (25): 2; (27): 2; (28): 3; (33): 3; (38): 2; (41): 3; (54): 2; (56): 2; (57); 4; (61): 1; (69): 1; (71): 1; (111): 1; (112): 1; (113): 24.
June: 26; July: 4 ; August: 144+; September: 84+; October: 46+; November: 2.
Earliest dates: SOUTH DEVON (3): Prawle Point, 7.6 - 6 (RMc); DORSET (9): Portland Bird Observatory, 7.6 (MC).
Latest dates: SOUTH DEVON (3): Abbotskerswell, 3.11 (BH); BUCKINGHAMSHIRE (24): Lavenden, 3.11 (G. Moss per GEH).
Possibly significant records: WEST CORNWALL (1): The Lizard, 18.8 - 12; 19.8 - 25 (DB, AG & RCK); SOUTH DEVON (3): Prawle Point, 21.9 - 5 (RMc); DORSET (9): Portland Bird Observatory, 7.6 to 17.6 - 7; 8.8 to 2.10 - 41 (MC).

Marbled Clover *Heliothis viriplaca* (Hufnagel) [I?/V?]

NORTH WILTSHIRE (7): Chittoe, 17.8 (EGS & MHS); ISLE OF WIGHT (10): Freshwater, 13.8; 14.8 (SAKJ); NORTH HAMPSHIRE (12): Crawley, 20.8 (RAB per BG); EAST NORFOLK (27): Barnham Broom, 9.8 (8.8 per Davey (1997)); (JG per Hipperson (1996)); Salthouse Heath, 10.8 (per Hipperson (1996)); WEST NORFOLK (28): Stiffkey, 17.8 (Davey 1997).

Bordered Straw *Heliothis peltigera* ([Denis & Schiffermüller]) [I]

Summary only: The vice-county number is given in brackets, followed by the number of individuals sighted in each vice-county (county). Where no numbers were given for an individual record, it was taken to be 1. Hence, the totals are approximate. This is followed by the monthly representation of the records. In several cases it was impossible to assign a given record to an individual month. As with the totals for the vice-counties, the monthly totals are, therefore, approximate.
Summary: (1): 138; (2): 1; (3): 145+ & 7+ larvae; (5): 20; (6): 4; (7): 1; (8): 1; (9): 528 (+ 1 larva); (10): 94; (11): 99+; (12): 36; (13): 21; (14): 206; (15): 338 & 1,000s larvae; (16): 2; (17): 41; (18): 24; (19): 11; (20): 2; ?(21): 1; (21): 1; (22): 1; (23): 5; (24): 10; (25): 41; (27): 20; (28): 12; (29): 3; (30): 2; (31): 3; (32): 1; (33): 7; (34): 5; (38): 22; (41): 28; (44): 2; (53): 2; (54): 13; (56): 7; (57): 15; (61): 29; (69): 56; (71): 3; (112): 1; (113): 71; (H12): 1.
April: 1; June: 997+; July: 23+ (+ 1000's larvae); August: 456+ (+ 1 larva); September: 78+; October: 6.
Earliest date: WEST CORNWALL (1): St. Agnes, Isles of Scilly, 6.4 (JH & MH).
Latest dates: [NORTH SOMERSET (6): Timsbury, undated, 22.10 (recorded as Scarce Bordered Straw (*Heliothis peltigera*)) (Barnett, Edmondson & Evans 1997)]; EAST KENT (15): Dungeness, 19.10 (DW per SPC).

Possibly significant records: WEST CORNWALL (1): St. Agnes, Isles of Scilly, 17.6 - 15; 19.6 - 19; 20.6 - 11; 24.6 - 31 (JH & MH); The Lizard, 19.8 - 10 (DB, AG & RCK); SOUTH DEVON (3): Branscombe Mouth, 19.8 - 1 larva on *Ononis* (BH); Codford St Mary, 17.6 - by day (PB); Prawle Point, 7.6 - 100's (RMc); Rosemmor RHS garden, undated - larvae on garden marigold *Calendula* (PB); Shaldon, 13.7 - 4 larvae on *Ononis* (BH); Slapton, 16.7 - larvae abundant on three species of thistle and scabious (PB); Tilshead, 17.6 - by day (PB); SOUTH WILTSHIRE (8): Great Cheverell Hill, 18.8 - 1 nectaring in late morning from *Centaurea* (GRE); DORSET (9): Brownsea Island, 20.8 - 1 flying by day (MT); Chesil Beach, 7.7 - larva on *Ononis* (JEC & RC); Durlston, 9.6 - 40 (DB & RCK); Gaunt's Common, 7.6 - 10 (PD); Hambledon Hill, 13.6 - 1 by day (PHS per PD); Lulworth Cove, 21.8 - 1 by day (MT); Portland Bird Observatory, 6.6 to 22.6 - 94 (including 9.6 - 10 (MC per PD)); 5.8 to 22.9 - 125 (MC); West Bexington, 16.6 - 16; 17.6 - 29 (RE per PD); Swanage, 7.6 - 55 (AG); Worth Matravers, 18.8 - 20; 19.8 - 14 (MT); ISLE OF WIGHT (10): Knowles Farm, 23.6 - 1 by day (per BG); St. Catherine's Point 23.6 - 1 by day (TS per BG); Ventnor Down, 20.8 - 1 feeding at heather blossom, a further 5 seen (JR); SOUTH HAMPSHIRE (11): Eastney, 12.8 - several at lucerne by day (JRL per BG); 15.8 - 1 at *Buddleia* by day (IRT per BG); Sinah Common, 20.6 - c.8 flying at around 6pm, nectaring at *Echium vulgare* and observed ovipositing on *Ononis* (GRE); SUSSEX: Hollington, 14.6 - feeding by day (T. Buttle per CRP); WEST SUSSEX (13): Walberton, 15.6 - flying by day (JTR per CRP); EAST SUSSEX (14): Blackcap, 14.6 - 1 swept by day (APF); Hollingbury, 7.8 - feeding by day (AB² per CRP); Holywell, 13.8 - 27 (CRP & MSP); Peacehaven, 16.6 - feeding on valerian by day (CRP); Rye Harbour, 12.6 - 12; 13.6 - 20; 15.5 - 15 (DJF per CRP); Westfield, 17.6 - feeding by day (RH² per CRP); EAST KENT (15): Dungeness, 7 - larvae "in thousands" (SPC); SOUTH ESSEX (18): Bradwell-on-Sea, 8.6 to 10.9 - 24 (inc. 6 by day) (AJD & SD); EAST NORFOLK (27): Winterton, 17.8 - 10 (per Hipperson (1996)); BEDFORDSHIRE (30): Potton Wood, 21.8 - nectaring on *Centaurea* (Woiwod 1997); NOTTINGHAMSHIRE (56): Dukes Wood, 22.8 - netted off knapweed (Elliot & Wright 1997); DERBYSHIRE (57): Beeley Moor, 20.8 - 12 (HGHM & JTS per SPC); Spurn, 21.8 - 4 by day; 23.8 - 2 by day; 24.8 - 16 by day; 27.8 - 2 by day (BS).

Small Marbled *Eublemma parva* (Hübner) [I]

WEST CORNWALL (1): Church Cove, The Lizard, 24.10 - 1 female (MT²); The Lizard, 19.8 (DB, AG & RCK); DORSET (9): Portland Bird Observatory, 26.6 (MC).

Silver Barred *Deltote bankiana* (Fabricius) [I?/V?]

EAST SUSSEX (14): Rye Harbour, 23.7 (K. Palmer per CRP); EAST KENT (15): Bishopstone, 22.7 (Anon 1996a); Herne Bay, 22.7 (BM); Dungeness, 22.7 (KR per SPC); 22.7 (TR); Dymchurch, 10.8 (JO per SPC); Minnis Bay, 23.7 (Anon 1996a); SOUTH ESSEX (18): Bradwell-on-Sea, 8.8 (SD); NORTH ESSEX (19): Copperas Wood, 28.9 (PS² per BG²); St Osyth, 5.8 (RWA per BG²).

Pale Shoulder *Acontia lucida* (Hufnagel) [I]

DORSET (9): West Bexington, 18.8 (RE per Waring (1996c)); SOUTH HAMPSHIRE (11): Linford, 19.8 (Cook 1997).

Golden Twin-spot *Chrysodeixis chalcites* (Esper) [I]

SOUTH ESSEX (18): Bradwell-on-Sea, 23.9; 24.9 (AJD); EAST SUFFOLK (25): Languard, 20.9 (Odin 1997).

The Ni Moth *Trichoplusia ni* (Hübner) [I]

Locality not given, 5.8 -2 (A.P.K. Torry per CWP); WEST CORNWALL (1): St. Agnes, Isles of Scilly, 20.6 - 2; 12.8; 20.8 (JH & MH); The Lizard, 18.8; 19.8 - 28 (DB, AG & RCK); SOUTH DEVON (3): Abbotskerswell, 5.8 (BH); Plympton, 27.6 (RJH); Prawle Point, 7.6 - 3 (RMc); Teignmouth, 18.8; 22.8 - 2 (RMc); SOUTH SOMERSET (5): Bishops Lydeard, 5.8; 17.8; 3.9 (MDB) (a total of 4 is given in Bryan (1997)); Staplegrove, Taunton, 2.9 (JMc); NORTH SOMERSET (6): Ashcott, undated (Anon 1996b); SOMERSET/GLOUCESTERSHIRE: Bishopston, 25.8 (R. Higgins per Barnett, Edmondson & Evans (1996d)); NORTH WILTSHIRE

(7): Crudwell, 17.8 (APF); Wroughton, undated (D.J. Brotheridge per SPC); DORSET (9): Abbotsbury, 15.8 - 2; 20.8 (D. Hallett per PD); Arne, 15.8 (NH per PD); Chardstock, 17. 8 to 19.8 - 3 (AJ per RMc); Gaunt's Common, 6.6; 8.8; 18.8 (PD); Higher Hyde, 7.8 (PHS per PD); Langton Matravers, 13.8 - 3 (P. Gray per PD); Portland, 14.8 - 2 (DB); Portland Bird Observatory, 7.6 - 2; 18.6; 2.8 to 2.9 - 13 (including 13.8 - 6 (MC per PD)) (MC); Portland, Freshwater Bay, 17.8 (JEC, JMS & RC); Swanage, 7.6 (AG); Trigon, 10.9 (PD); West Bexington, 7.9; 8.9 (RE per PD): Weymouth, 15.8 (J. Powne per PD); Worth Matravers, 20.8 (MT); ISLE OF WIGHT (10): Binstead, 16.8 (BJW); Bonchurch, 12.8 (JH[2] per SAKJ); 13.8 - 5 (JH[2]); Freshwater, 11.6 (SAKJ); Godshill, 19.8 (P.J. Cramp per SAKJ); The Causeway, Freshwater, 3.8 (D. Wooldridge per SAKJ); SOUTH HAMPSHIRE (11): Beaulieu, 14.8 (BIJ per BG); Brockenhurst, 11.8 (JEC); Browndown/Alver Valley area, 5.8 (SS[2] & DW[2] per SPC); Gosport, 5.8 (D. Walker per BG); Solent Court [Warsash], 5.8 - 1; 12.8 - 3; 20.8 (PMP per Waring (1996c)); Southsea, 14.8; 1.9 (JRL per BG); Sparsholt, 29.7; 15.8; 3.9 (RAB); WEST SUSSEX (13): Pagham Harbour, 13.8 - 2 (DB); 19.8 (JTR per CRP); Walberton, 12.8 (JTR per CRP); EAST SUSSEX (14): Bexhill, 4.8; 6.8 (D. Hillman per CRP); Holywell, 13.8 - 2; 21.8 (CRP & MSP); Rye Harbour, 12.6; 17.6; 13.8; 16.8 (DJF per CRP); EAST KENT (15): Herne Bay, 22.8 (BM); New Romney, 22.6 - 1 male; 25.6 - 1 male (KR per SPC); SURREY (17): Addington, 21.8 (BFS); Betchworth, 3.8 (CH); Woking, 9.8 (SCP per SPC); SOUTH ESSEX (18): Bradwell-on-Sea, 8.8 (SD); NORTH ESSEX (19): Saffron Walden, 17.8 (AME per SPC); EAST GLOUCESTERSHIRE (33):Longney, 4.8 (AS & SS per RG); WEST GLOUCESTERSHIRE (34): Slimbridge, undated (N. Woodward per RG); WARWICKSHIRE (38): Charlecote, 9.8 (AG); 11.6; 23.6 (DB); Tile Hill, Coventry, 22.8 (AK per DB); GLAMORGAN (41): Roath, Cardiff, 19.8; 20.8 (per DG); Whiteford Point, Gower, 7.9 (per DG); DERBYSHIRE (57): Chesterfield, 10.8 (Elliot & Wright 1997); SOUTH-EAST YORKSHIRE (61): Spurn, 22.8 (BS); WESTMORLAND (69): South Walney, 17.6 (WM per DWK).
Summary: Locality not given: 2; (1): 32; (3): 8; (5): 5; (6): 1; Som./Glouc.: 1; (7): 2; (9): 39; (10): 10; (11): 14; (13): 4; (14): 9; (15): 3; (17): 3; (18): 1; (19): 1; (33): 1; (34): 1; (38): 4; (41): 3; (57): 1; (61): 1; (69): 1.

Dewick's Plusia *Macdunnoughia confusa* (Stephens) [I]

EAST SUSSEX (14): Rye Harbour, 19.8 (DJF per CRP); SHETLAND ISLANDS (112): Eswick, 12.8; 13.8 (TDR per Pennington (1997)).

Gold Spangle *Autographa bractea* ([Denis & Schiffermüller]) [I?/V?]

SHETLAND ISLANDS (112): Baltasound, 19.8 - 1 by day (MGP).

Scarce Silver Y *Syngrapha interrogationis* (Linnaeus) [I/V?]

SOUTH ESSEX (18): Bradwell-on-Sea, 30.8 (AJD); NORTH ESSEX (19): Jaywick, 18.8 (JY per BG[2]); WEST NORFOLK (28): Holme, 15.8 (Davey 1997); SHETLAND ISLANDS (112): Eswick, 12.8 (MGP); Norwick, 12.8 - 7 (MGP); Ocraquoy, 12.8 (MGP).

Clifden Nonpareil *Catocala fraxini* (Linnaeus) [I]

ISLE OF WIGHT (10): Freshwater, 9.10 - 1 female (SAKJ); Gunard Marsh, 24.9 (Mr Downer per SAKJ); EAST NORFOLK (27): Horsey, 18.9 (JRL & PHS per SPC).

[*Catocala elocata* (Esper)

EAST KENT (15): Dungeness, 18.8 (SPC per Waring (1996c)) - reported in error. Corrected in Waring (1996d).]

Dark Crimson Underwing *Catocala sponsa* (Linnaeus)

EAST KENT (15): Dungeness, 19.8 - 1 female (KR per SPC).

The Passenger *Dysgonia algira* (Linnaeus) [I]

DORSET (9): Portland, 14.8 (DB); WEST KENT (16): Gravesend, 31.7 (D.J.L. Agassiz per SPC).

Bloxworth Snout *Hypena obsitalis* (Hübner) [I?/V?]

Note: Channel Islands records not included.

[SOUTH DEVON (3): Churston, 2.7 - larvae (McCormick 1997)]; DORSET (9): Portland Bird Observatory, 5.8; 7.12 (MC).

Plumed Fan-foot *Pechipogo plumigeralis* (Hübner) [I]

EAST SUSSEX (14): Rye Harbour, 22.7; 8.8; 11.8 (P. Troakes & DJF per CRP, see also Clancy & Honey (1997)); EAST KENT (15): New Romney, 8.8 (KR per Clancy & Honey (1997)).

ANNEXE 2: SELECTED RECORDS OF "COMMONER" SPECIES

This annexe gives the earliest and latest date for the more frequent immigrant species which are not covered in Annexe 1. Other significant records or observations for 1996 which have been received and were not covered in Annexe 1, such as large numbers of an individual species or unusual records of resident species which may be the result migrant activity, are also given. Penington (1997) lists several other species, which are not included here, recorded from the Shetland Islands whose occurrence on the islands may be the result of immigrant activity.

YPONOMEUTIDAE

***Plutella xylostella* (Linnaeus) [I]**

Brief summary: Generally common, occasionally abundant, and widespread. Between 21.4 and 27.8 a total of 9,685 were recorded at Portland Bird Obsevatory, Dorset (9) (MC). Over the year a total of 266 were recorded at Freshwater, Isle of Wight (10) (SAKJ) and a total of 607 were recorded for the year at Peacehaven, East Sussex (14) (CRP).

Earliest dates: WEST CORNWALL (1): St. Agnes, Isles of Scilly, 21.3 (JH & MH); Church Cove, The Lizard, 22.3 - 13 (MT[2]).

Latest dates: NORTH HAMPSHIRE (12): Selborne, 21.11 (AEA); ISLE OF MAN (71): Callan Dhoon Maughold, 14.11 (LK per GDC); DORSET (9): Portland Bird Observatory, 13.11 (MC); WARWICKSHIRE (38): Charlecote, 11.11 (AG).

Other significant records: WEST CORNWALL (1): St. Agnes, Isles of Scilly, 19.6 - 75; 24.6 - 45; 19.7 - 200; 15.8 - 200; 18.8 - 150 (JH & MH); DORSET (9): Durlston, 9.6 - 50 (DB & RCK); Gaunt's Common, 6.6 - 59 (PD); Portland Bird Observatory, 7.6 - 297; 26.6 - 465; 22.7 - 510 (MC per PD); 20.6 - 4,600, common thereafter throughout 9 and early 10 (MC); SOUTH HAMPSHIRE (11): Solent Court, 22.4 - 43 (PMP per Waring (1996a)); NORTH HAMPSHIRE (12): Farnborough, 14.6 - 50+ (RWP); Selborne, 7.6 - 120 (AEA); EAST SUSSEX (14): Peacehaven, 7.6 - 283 (CRP); EAST SUFFOLK (25): Landguard, 8.6 - 1,857 (Odin 1997); SOUTH-EAST YORKSHIRE (61): Spurn, 7.6 - 286; 7.6 - "thousands were on the peninsula"; 25.7 - 24 (BS); SHETLAND ISLANDS (112): Locality not given, 11/12.5, up to 20-30 in half an hour (MGP per CWP).

PYRALIDAE

***Udea ferrugalis* (Hübner) [I]**

Brief summary: Generally common, occasionally abundant, and widespread. Between 25.5 and 27.8 a total of 1,443 were recorded at the Portland Bird Observatory, Dorset (9) (MC). A total of 161 were recorded over the year at Freshwater, Isle of Wight (10) (SAKJ); a total of 183 were recorded at Peacehaven, East Sussex (14) (CRP), and a total of 175 recorded between 24.5 and 5.11 at Herne Bay, East Kent (BM).

Earliest date: CHANNEL ISLANDS (113): Guernsey, La Broderie, 4.4 - 4 (PC per Austin (1997)); WEST CORNWALL (1): Church Cove, The Lizard, 22.4 (MT[2]); St. Agnes, Isles of Scilly, 22.4 (JH & MH).

Latest dates: CHANNEL ISLANDS (113): Guernsey, La Broderie, 20.12 - 25 (PC per Austin (1997); WEST CORNWALL (1): Church Cove, The Lizard, 30.11 - 16; 16.12; 18.12; 19.12

(MT[2]); ISLE OF WIGHT (10): Binstead, 19.12 (BJW); SOUTH DEVON (3): West Hill, Ottery St Mary, 23.11 (PB); ISLE OF MAN (71): Castletown, 15.11 (GDC); DORSET (9): Portland Bird Observatory, 9.11 (MC); NORTH HAMPSHIRE (12): Selborne, 3.11- 3 (AEA); SURREY (17): Betchworth, 2.11 (CH).
Other significant records: WEST CORNWALL (1): St. Agnes, Isles of Scilly, 12.8 - 56; 15.8 - 68; 17.8 - 59; 3.9 - 25; 7.9 - 54 (JH & MH); The Lizard, 18.8 - 500; 19.8 - 2,000 (DB, AG & RCK); 9.10 - larvae on *Calendula* (PB); SOUTH DEVON (3): Dawlish, 5.8 - 31; 16.8 - 23; 18.8 - 29; 19.8 - 57; 22.8 - 37; 25.8 - 41 (AR per RMc); Prawle Point, 7.6 - abundant (RMc); West Hill, Ottery St Mary, 6.6 - hundreds (PB); DORSET (9): Durlston, 9.6 - 50 (DB & RCK); Freshwater Bay, Portland, 29.8 - 200 to 300 (MSP); Portland, 14.8 - 50 (DB); Portland Bird Observatory, 16.8 - 157, numbers remained high in 9 and 10 (MC); 21.8 - 127 (MC per PD); NORTH HAMPSHIRE (12): Farnborough, 4.6 - 30+ (RWP); WARWICKSHIRE (38): Charlecote, 25.8 - 45 (AG); SOUTH-EAST YORKSHIRE (61): Spurn, 5.9 - 20 (BS) CHANNEL ISLANDS (113): Guernsey, La Broderie, 13.8 - 53 (PC per Austin (1997)).

***Nomophila noctuella* ([Denis & Schiffermüller]) [I]**

Brief summary: Generally abundant and widespread. Between 26.4 and 27.8 a total of 35,047 were recorded at the Portland Bird Observatory, Dorset (9) (MC). A total of 6,426 were recorded over the year at Freshwater, Isle of Wight (10) (SAKJ); a total of 1,664 were recorded at Peacehaven, East Sussex (14) (CRP); a total of 7,746 recorded between 19.4 and 31.10 at Herne Bay, East Kent (15) (BM); a total of 785 recorded over the year at Spurn, South-east Yorkshire (61), and a total of 468 recorded over the year on the Shetland Islands (112) (MGP).
Earliest date: WEST CORNWALL (1): Church Cove, The Lizard, 22.3 (MT[2] per Waring (1996a).
Latest dates: DORSET (9): Portland Bird Observatory, 15.11 (MC); SOUTH DEVON (3): Dawlish, 11.11 (AR per RMc); ISLE OF WIGHT (10): Freshwater, 9.11 (SAKJ); NORTH HAMPSHIRE (12): Selborne, 7.11 (AEA); SURREY (17): Betchworth, 4.11 - 2 (CH); NORTH ESSEX (19): St Osyth, 4.11 (RWA per BG[2]) NORTH LINCOLNSHIRE (54): Roughton, 1.11 (JJ per RJ); CHESHIRE (58): Dean Row, 1.11 (B.T. Shaw per SHH).
Other significant records: WEST CORNWALL (1): Kennack Sands, 21.10 - 40 (JHC); Kynance Cove, 19.9 - 855 (MT[2]); St. Agnes, Isles of Scilly, 6.6 - 300; 17.6 - 430; 22. 6 - 300; 19.7 - 2,000; 20.7 - 3,000; 22.7 - 2,000; 4. 8 - 1,000; 12.8 - 2,000; 15.8 - 2,000; 5.9 - 300; 19.9 - 500; 21.9 - 1,200; 2.10 - 150; 14.10 - 235 (JH & MH); The Lizard, 18.8 - 800; 19.8 - 8,000 (DB, AG & RCK); SOUTH DEVON (3): Countess Wear, Exeter, 7.6 - 63; 22.7 - 100+; 31.7 - 71; 12.8 - 50; 29.9 - 49; 10.10 - 48 (PB[2] per RMc); Dawlish, 19.8 - 96 (AR per RMc); Prawle Point, 7.6 - 1,000s (RMc); West Hill, Ottery St Mary, 6.6 - "traps full" (PB); SOUTH SOMERSET (5): Bishops Lydeard, 8.6 - 50+; 10.6 - 100+; 17.9 - 100+; 1.10 - 100+ (MDB); Crewkerne, late July, c.1000 per night (JR); DORSET (9): Chideock to Charmouth coast, 15.9 - 1,000's (GRE); Durlston, 9.6 - 200 (DB & RCK); Gaunt's Common, 6.6 - 330; 27.7 - 385; 7.8 - >200; 14.8 - >350; 18.8 - >200; 19.8 >250 (PD); Portland, 3.8 - 3,100 (MC per PD); 14.8 - 800 (DB); Portland Bird Observatory, 7.6 - 213; 26.7 - 1,204; 3.8 - 3,100; 7.8 - 1,174; 12.8 - 2,612; 13.8 - 3,500; 19.8 - 2,000; 21.8 - 1,850 (MC per PD); 11.8 - 3,670, common throughout 9 and 10 (MC); NORTH HAMPSHIRE (12): Farnborough, 6.6 - 50+ (RWP); Selborne, 7.6 - 40; 8.6 - 70; 22.7 - 50; 23.7 - 105; 11.8 - 46; 12.8 - 116; 19.9 - 56; 20.9 - 66; 29.9 - 44; 8.10 - 65; 9.10 - 70 (AEA); WEST SUSSEX (13): East Grinstead, 8.10 - 25; 11.10 - 40; 13.10 - 40 (JHC); Pagham Harbour, 14.6 - 25+; 5.8 - 100's (BFS & MSP); 13.8 - 150 (DB); EAST SUSSEX (14): Holywell, 13.8 - 100's (MSP & CRP); Peacehaven, 31.7 - 40; 2.8 - 164; 7.8 - 81; 11.8 - 65; 20.9 - 28; 27.9 - 45; 6.10 - 28; 13.10 - 23 (CRP); Rye Harbour, 2.8 - 2,980 (Davey 1997); EAST KENT (15): Densole, 7.6 - 1,000s (TR); Dungeness, 8.6 - 20; 2.8 - 197; 7.8 - 228; 14.8 - 174; 27.8 - 110; 30.8 - 218; 25.9 - 273; 2.10 - 900; 7.10 - 500; 8.10 - 615; 21.10 - 150 (per SPC); Dungeness (separate trap site), 27.9 - 120; 29.9 - 300; 7.10 - 450 (per SPC); Folkestone Warren, 7.6 - 1,000s (TR); Herne Bay, 2.10 - 582 (BM); Littlestone, 8.6 - 45 (per SPC); New Romney, 8.6 - 50; 8.8 - 400 (per SPC); SURREY (17): Betchworth, 6.6 - 21; 7.6 - 51; 6.10 - 25 (CH); Centenary Fields, Lingfield, 8.10 - 30 (JHC); Lingfield, 26.9 - 25; 7.10 - 70; 8.10 - 100; 9.10 - 75 (JHC); Normandy, 27.7 - 200 (GAC); MIDDLESEX (21): Hampstead, 9.6 - 25 (RAS); BERKSHIRE (22): Nettlebed Common, 9.6 - 100s flushed from grass etc. by day (MT); EAST SUFFOLK (25): Landguard, 3.10 - 699 (Odin

1997); CAERNARVONSHIRE (49): Bangor, 6.8 - 60 (DL per CWP); SOUTH-EAST YORKSHIRE (61): Spurn, 29.7 - 26; 21.8 - 262; 7.10 - 38 (BS); ISLE OF MAN (71): Calf of Man, 2.8 - 118 (TB); Callan Dhoon Maughold, 23.7 - 60 (LK per GDC); Castletown, 12.8 - 50 (GDC); ORKNEY ISLANDS (111): North Ronaldsay lighthouse, 14.8 - 30 (MG per SVG); SHETLAND ISLANDS (112): Eswick, 13.8 - 105 (Pennington 1997); CHANNEL ISLANDS (113): Guernsey, Locality not given, 11.10 - 2,735 (PC per Austin (1997)).

NYMPHALIDAE

Red Admiral *Vanessa atalanta* (Linnaeus) [I]

Brief summary: Generally common to very common and widespread.

Earliest dates: HAMPSHIRE: Winchester, 3.1 (B. Fletcher & Mrs M Fletcher per Taverner (1997)); EAST SUSSEX (14): Ashdown Forest, 7.1 (A. Gillham per CRP); Seaford, 16.1 (per DD per CRP); Westfield, 17.1 (D. Frost per CRP); ISLE OF WIGHT (10): Cowes 12.1 (J. Caws per Taverner (1997)); Arreton, 14.1 - 1 flying in a heated cucumber house (BJW per Taverner (1997)); Gurnard, 17.1 (Dr D.T. Biggs per Taverner (1997)); SOUTH HAMPSHIRE (11): Meon Valley, 14.1 (E.W. B. Baigent per Taverner (1997)); WEST KENT (16): Orpington, 14.1; 17.1 (Gann 1996); BERKSHIRE (22): Goring-on-Thames, 14.1 (Batty 1996a); OXFORDSHIRE: border, 14.1 (Batty 1996a); CAMBRIDGESHIRE (29): Cambridge, 14.1 (Gardiner 1996); EAST SUSSEX (14): Seaford, 16.1 (Batty 1996a); SURREY (17): Leigh, 17.1 (Jeffcoate & Gerrard (1997).

Latest dates: ISLE OF WIGHT (10): Thorley, 11.12 - an individual possibly awakened from hibernation (Miss M. Summers per Taverner (1997)); SOUTH HAMPSHIRE (11): Farlington Marshes, 30.11 (C. Cockburn per Taverner (1997)); DORSET (9): Portland, 20.11 (MC); CHANNEL ISLANDS (113): Guernsey, Locality not given, 16.11 (Austin 1997); SURREY (17): Denbies hillside, 13.11 (Jeffcoate & Gerrard 1997).

Other significant records: Larvae were observed at 2 localities (not given) from 11 (1995) to 4 (Bowles 1996a); WEST CORNWALL (1): The Lizard, 19.8 - 4 to mv light (DB, AG & RCK); DORSET (9): Portland Bird Observatory, 27.7 - 1 to mv light; 12.8 to 28.8 - 11 to mv light (MC); Studland Heath, 20.8 - many 1,000s (MT); ISLE OF WIGHT (10): Bonchurch landslip, 18.8 - 500+ (AB & LB per Taverner (1997)); Knighton Down, 10.6 - 500+ larvae (BJW per Taverner (1997)); St. Catherine's Down, 3.8 - 100+ (per Taverner (1997)); SOUTH HAMPSHIRE (11): Emsworth, early 8 - 150 on one oak on several occasions (R. Hollins per Taverner (1997)); Mockbeggar Hill, 17.8 - 1,000+ (DD[2] per Taverner (1997)); Shedfield golf course, 5.8 - 50+ resting on a tree trunk (per Taverner (1997)); HAMPSHIRE: Winchester Canal, 5.8 - 100+ (J.H. Taverner per Taverner (1997)); NORTH HAMPSHIRE (12): Farnborough, 4.6 - 30+ (RWP); Noar Hill, 16/17.8 - 100+ (B. Giddings per Taverner (1997)); WEST SUSSEX (13): Amberley, 7.6 - c.30 (MSP); East Grinstead, 21.8 - abundant (JHC); SURREY (17): Centenary Fields, Surrey, 26.7 - several trapped at light (JHC); ANGLESEY (52): Locality not given, 9.3 (Bowles 1996a); DERBYSHIRE (57): Chesterfield, 20.8 - 31 (Frost 1996a); Holbrook, 18.8 - 48 (Frost 1996a); CHESHIRE (58): Frodsham Marsh, 9.8 - c.800 (Frost 1996a); WESTMORLAND (69): South Walney, 17.8 - an estimated 1,000+ (WM per DWK); SOUTH-EAST YORKSHIRE (61): Spurn, 19.8 - 65 (BS); SOUTH-WEST YORKSHIRE (63): Huddersfield, 20.6 - 1 to light (Beaumont (1997); CHANNEL ISLANDS (113): Guernsey, Locality not given, 7.6 - 100+; 10.6 - 200+ (Austin 1997); LONDONDERRY (H40): Locality not given, 7.3 (Bowles 1996a).

Painted Lady *Vanessa cardui* (Linnaeus) [I]

Brief summary: Generally very abundant and widespread.

Earliest dates: ISLE OF WIGHT (10): Arreton, 18.3 (BJW per Taverner (1997)); DEVON: Locality not given, 21.3 (Bowles 1996a).

Latest dates: SOUTH DEVON (3): West Hill, Ottery St Mary, 13.12 (PB); DORSET (9): Portland, 15.11 (MC).

Other significant records: "Many millions ..... must have entered the country on an enormous front" (Bowles 1996b); WEST CORNWALL (1): Church Cove, The Lizard, 22.3 - 1 to light trap (MT[2]); St. Agnes, Isles of Scilly, late 4.6 & 5.6 - "Large influx involving hundreds if not thousands" (JH & MH); The Lizard, 19.8 - 5 to mv light (DB, AG & RCK); 20.8 - 1 to mv light

(DB); CORNWALL: Truro, 8.6 - "by 2.00pm, well over 30 seen with one or two every few seconds . . . but by 5.00pm the influx had stopped" (RDP & PP); 14.8 - 20 on small patch of thistles (RDP & PP); SOUTH DEVON (3): Bere Alston, 30.5 - c.50; 7.6 - 20 in ten minutes (Bogue 1996); 5.8 - "dozens" (R.W. Bogue); Branscombe, 13.6 - "Incredible quantities"; 3.7 - larvae on pellitory-on-the-wall *Parietaria* (PB); Churston, 2.7 - larvae on pellitory-on-the-wall *Parietaria* (PB); Dartmoor, 8.6 - 2 "thousands", over 100 counted in ten minutes (Bogue 1996); Kingswear, 2.7 - larvae on pellitory-on-the-wall *Parietaria* (PB); Newton Abbot, 8.6 - crossing a 100m stretch of road at 40/min. (BH); Ottery St Mary, 3.7 - larvae on pellitory-on-the-wall *Parietaria* (PB); Plympton, 23.8 - 1 at light (RJH); Prawle Point, 7.6 - abundant (RMc); Tilshead, 17.6 - many hundreds (PB); DORSET (9): Ballard Down, 7.6 - 30+ (AG); Portland, 6.6 to 7.6 - many thousands; early 8 - 10s of 1,000s; 3.8 - 19.8 - 16 to mv light (MC); Studland Heath, poss. 10-20,000 (MT); ISLE OF WIGHT (10): Bembridge Down, 7.6 - 1,000+ (AB & LB per Taverner (1997)); Brading Down, 5.8 - 300+ - (BJW per Taverner (1997)); Compton Down, 12.6 - 700+ (B. Ransome per Taverner (1997)); Knighton Down, 10.6 - 1,000s; 11.6 - up to 30 larvae per thistle plant; around 8.8 - 400+ (BJW per Taverner (1997)); Luccombe, 17.8 - 1,500 to 2,000 behind the cliff (AB & LB per Taverner (1997)); SOUTH HAMPSHIRE (11): Ibsley Gravel Pits, 28.7 - 500+ (DD^2 per Taverner (1997)); Sopley, 29.7 - 250+ (M.J. Gibbons per Taverner (1997)); NORTH HAMPSHIRE (12): Farnborough, 5.6 - 30+ (RWP); HAMPSHIRE: St. Catherine's Hill, Winchester, around 8.8 - 700+ (C. Piatkiewicz per Taverner (1997)); WEST SUSSEX (13): Amberley, 7.6 - c.25 (MSP); EAST SUSSEX (14): Locality not given, around 4.8 - "dozens on quite smale areas of Knapweed" (P. Roper per CWP); The Crumbles, Eastbourne, 23.6 - c.30 (MSP); Peacehaven, 8.8 - 45; 11.8 - 38; 19.8 - 43; 27.8 - 32; SURREY (17): Banstead, 9.6 - 50 (S.W. Gale per Plant (1997)); Centenary Field, Lingfield, 15.6 - abundant (JHC); EAST KENT (15): Folkestone Warren, 7.6 - 100s (TR); SOUTH ESSEX (18): Bradwell-on-Sea, "1000s of adults and almost certainly 100s of 1000s larvae. Recorded as an adult from 27 April - 1 November"; 7.6 - 553+; 12.6 - at least 1,600; early 8 - at least 10,000 (AJD & SD); BERKSHIRE (22): Besselsleigh and Cothill, 7 - larvae (all dead) on mugwort *Artemisia vulgaris* (Cronin & McNamara 1996); Cothill, 7 - larva on comfrey *Symphytum officinale* (Cronin & McNamara 1996); BERKSHIRE (22): Long Wittenham, 6 - larvae on mallow (MT); WEST SUFFOLK (26): Icklingham Triangle, 25.6 - abundant (JHC); WEST NORFOLK (28): Holme Dunes, 9.6 - "100,000 coming in off the sea" (Hill 1997); WORCESTERSHIRE (37): Little Comberton, 9.6 - 110 in 30 minutes (Whitehead 1996); near Madresfield, 10.9 - over 100 on a small meadow (Whitehead 1996); Upton-on-Severn, 9.6 - 90 in a couple of hours (Whitehead 1996); larvae found on *Cirsium vulgare*, *Carduus nutans*, *Onopordum acanthium*, and 2 larvae on *Artemisia stelleriana* (Whitehead 1996); WARWICKSHIRE (38): Charelecote, 9.8 - 1 to mv light; 15.8 - 1 to mv light (AG); Charlecote Gravel Pit, 9.8 - 35 to 40 (AG); ANGLESEY (52): Penmon Church, 14.7 - larva on lesser burdock (SHH, IFS & D.J. Poynton); LEICESTERSHIRE (55): Loughborough to Stanford on Soar, 5.8 - 117 (Frost 1996a); Rutland Water, 16.8 - 169 (Frost 1996a); Stanford on Soar, 5.8 - 103 (Frost 1996a); NOTTINGHAMSHIRE (56): several counts of over 100 listed in Frost (1996a); Lound, 8.6 - 4,650 (Frost 1996b); DERBYSHIRE (57): several counts of over 100 listed in Frost (1996a); Flagg, 16.8 - 30 (SHH); Lathkill Dale, 16.8 - 26 (SHH); Longendale Trail, 5.8 - 171 (H.M. Perkins per SHH); Millers Dale Quarry, 12.8 - 80 (SHH); Monsal Trail, 12.8 - 32 (SHH); Pin Dale, Castleton, 9.8 - 45+ (SHH); Welbeck, 8.7 - 40-50,000 larvae on a thistle patch (Frost 1996b); CHESHIRE (58): Avro Golf Club, Woodford, 13.6 - about 50 (A.L. Crudge per SHH); Bollin Valley, Prestbury, 17.8 - 35 (SHH); Frodsham Marsh, 9.8 - 6,000 (Frost 1996a); Ironbower, Longendale, 14.8 - 30 (SHH); Macclesfield Forest, 9.6 - 30+ (C. Caines per SHH); Torgate Hill, 1.9 - 25+ (Ms G. Pierce per SHH); SOUTH-EAST YORKSHIRE (61): Spurn, 6.6 - 29; 7.6 - 79; 2.8 - 250; 3.8 - 800; 10.8 - 450; 17.8 - 98 (BS); SOUTH-WEST YORKSHIRE (63): Huddersfield, 8.8 - 1 to light (Beaumont (1997); NORTH NORTHUMBERLAND (68): Bamburgh Castle, 6.8 - abundant (JHC); Inner Farne, 6.8 - abundant (JHC); Ross, Bamburgh 6.8 - abundant (JHC); WESTMORLAND (69): South Walney, 12.8 - an estimated 5,000+ (WM per DWK); SHETLAND ISLANDS (112): Sumurgh Hotel, 13.5 (Pennington 1997); 25.8 - "almost 100 around Shetland" (MGP); Fair Isles, 13.8 and 14.8 - up to 60 (MGP); Sumburgh Head, Mainland, 13.8 and 14.8 - up to 30 (MGP); a total of 600+ recorded over the year (MGP); CHANNEL ISLANDS (113): Guernsey, 7.7 - larvae of thistle and burdock (PC per Batty (1996b)); Guernsey, locality not given, 7.6 - 100+ (Austin 1997).

NOCTUIDAE

Dark Sword-grass *Agrotis ipsilon* (Hufnagel) [I]

Brief summary: Generally a good year for the species. Occasionally common and widely reported. Between 26.4 and 27.8 a total of 780 were recorded at the Portland Bird Observatory, Dorset (9) (MC); a total of 61 were recorded over the year at Freshwater, Isle of Wight (10) (SAKJ); a total of 8 were recorded at Peacehaven, East Sussex (14) (CRP), and between 19.4 and 30.10 a total of 248 were recorded at Herne Bay, East Kent (15) (BM); a total of 456 were recorded between 19.4 and 17.11 at Bradwell-on-Sea, South Essex (18) (AJD & SD).

Earliest date: WEST CORNWALL (1): Church Cove, The Lizard, 22.3 - 8 (MT²); ISLE OF WIGHT (10): Freshwater, 22.3 (SAKJ); EAST SUSSEX (14): Peacheaven, 22.3 (CRP).

Latest dates: SOUTH ESSEX (18): Bradwell-on-Sea, 17.11 (AJD & SD); ISLE OF MAN (71): Dhoon Maughold, 16.11 - 4 (LK per GDC).

Other significant records: WEST CORNWALL (1): St. Agnes, Isles of Scilly, 6.6 - 30; 22.7 - 11; 15.8 - 30; 5.9 - 32; 13.9 - 30 (JH & MH); The Lizard, 18.8 - 100; 19.8 - 500 (DB, AG & RCK); DORSET (9): Portland Bird Observatory, 13.8 - 135, numerous throughout 9 and 10 (MC); Worth Matravers, 19.8 - c.30 (MT); EAST SUSSEX (14): Holywell, 13.8 - 20 to 30 (MSP & CRP); EAST KENT (15): Herne Bay, 22.8 - 19 (BM); SOUTH-EAST YORKSHIRE (61): Spurn, 21.8 - 15 (BS); WESTMORLAND (69): South Walney, 14.6 - 19 (WM per DWK); ISLE OF MAN (71): Dhoon Maughold, 12.6 - 10; 2.10 - 18; 7.10 - 20 (LK per GDC); ORKNEY ISLANDS (111): North Ronaldsay, 26.9 - 75 to sugar (per SVG); SHETLAND ISLANDS (112): Eswick, 16.6 - 14; 15.8 - 18; 16.8 - 18 (Pennington 1997).

Large Yellow Underwing *Noctua pronuba* [I?/R]

Possibly significant records: WEST CORNWALL (1): St. Agnes, Isles of Scilly, 19.9 - 406 (JH & MH); Lizard Point, 20.7 - >8,000 (RH³); EAST SUSSEX (14): Holywell, 14.7 - c.5,000 (MSP & CRP); CAERNARVONSHIRE (49): Bangor, 6.8 - 458 (DL per CWP); SOUTH-EAST YORKSHIRE (61): Spurn, 23.7 - 405 (BS).

Pearly Underwing *Peridroma saucia* (Hübner) [I]

Brief summary: Generally a good year for the species. Occasionally numerous and widely reported, though less common in the north of the country. Between 25.4 and 27.8 a total of 223 were recorded at the Portland Bird Observatory, Dorset (9) (MC); a total of 22 were recorded at Peacehaven, East Sussex (14) (CRP); and between 24.5 and 30.10 a total of 295 were recorded at Herne Bay, East Kent (15); a total of 456 were recorded between 9.6 and 17.11at Bradwell-on-Sea, South Essex (18) (AJD & SD).

Earliest date: WEST CORNWALL (1): Church Cove, The Lizard, 22.3 (MT²).

Latest dates: SOUTH ESSEX (18): Bradwell-on-Sea, 17.11 (AJD & SD); NORTH HAMPSHIRE (12): Selborne, 12.11; 13.11; 14.11; 15.11; 16.11; 28.11 (AEA); DORSET (9): Portland Bird Observatory, 9.11 (MC); Worth Matravers, 1.11 (MT); SURREY (17): Lingfield, 8.11 (JHC); SOUTH DEVON (3): Abbotskerswell, 3.11 (BH); DUMFRIESSHIRE (72): Connansknowe, Kirkton, 2.11 (RM); WEST GLOUCESTERSHIRE (34): St. Briavels, 1.11 (RG); MIDDLESEX (21): Hampstead, 1.11 (RAS).

Other significant records: WEST CORNWALL (1): Kennack Sands, 21.10 - 14 (JHC); Kynance Cove, 19.9 - 136; 21.9 - 253 (MT²); Meadow Dean, Ruan Minor, 20.10 - 8; 21.10 - 18; 22.10 - 20 (JHC); St. Agnes, Isles of Scilly, 19.9 - 14; 21.9 - 16; 6.10 - 10; 22.10 - 11 (JH & MH); SOUTH DEVON (3): Branscombe, 23.10 - 10 (RMc); Prawle Point, 21.9 - 8 (RMc); DORSET (9): Portland Bird Observatory, numbers increased and remained high throughout 9 and 10 (MC); 7.6 - 26 (MC per PD); EAST KENT (15): Herne Bay, 8.10 - 32 (BM).

The Nutmeg *Dicestra trifolii* (Hufnagel) [I?]

ORKNEY ISLANDS (111): 9 recorded in 1996 (per SVG); SHETLAND ISLANDS (112): about 150 recorded in 1996 (MGP).

Common Wainscot *Mythimna pallens* (Hübner)

SHETLAND ISLANDS (112): about 35 recorded in 1996 (Pennington 1997).

The Brick *Agrochola circellaris* (Hufnagel)

SHETLAND ISLANDS (112): just over 100 recorded in 1996 (Pennington 1997).

The Crescent *Celaena leucostigma* [I?]

SHETLAND ISLANDS (112): over 350 recorded in 1996 (Pennington 1997).

Silver Y *Autographa gamma* (Linnaeus) [I]

Brief summary: Generally abundant, often exceedingly abundant, and widespread. Between 21.4 and 27.8 a total of 15,554 were recorded at the Portland Bird Observatory, Dorset (9) (MC). A total of 2,165 were recorded over the year at Freshwater, Isle of Wight (10) (SAKJ); a total of 2,009 were recorded at Peacehaven, East Sussex (14) (CRP), and between 21.4 and 18.12 a total of 12,847 were recorded at Herne Bay, East Kent (BM); a total of 9,052 were recorded between 11.5 and 9.11 at Bradwell-on-Sea, South Essex (18) (AJD & SD).

Earliest dates: ISLE OF MAN (71): Castletown, 30.1 - 4 (GDC); WEST CORNWALL (1): Church Cove, The Lizard, 22.3 - 3 (MT[2]).

Latest dates: CHANNEL ISLANDS (113): Guernsey, Locality not given, 20.12 (Austin 1997); EAST KENT (15): Herne Bay, 18.12 (BM); SURREY (17): Chessington, 8.11 (J. Porter per GAC); Lingfield, 4.11; 6.11 (JHC); Polesden Lacy, Dorking, 30.11 (JHC); ISLE OF MAN (71): Castletown, 16.11 - 4 (GDC); Dhoon Maughold, 16.11 - 12 (LK per GDC); Kentraugh Rushen, 16.11 - 5 (GDC); NORTH HAMPSHIRE (12): Selborne, 11.11 (AEA); ISLE OF WIGHT (10): Freshwater, 9.11 (SAKJ); SOUTH ESSEX (18): Bradwell-on-Sea, 9.11 (AJD & SD); WEST CORNWALL (1): Church Cove, The Lizard, 8.11 (MT[2]); MIDDLESEX (21): Hampstead, 1.11; 5.11 - 2; 7.11 (RAS); SOUTH-EAST YORKSHIRE (61): Spurn, 1.11 (BS).

Other significant records: WEST CORNWALL (1): between Bedruthan and Porth Mear, 15.8 - numerous, dozens every few yards (RDP & PP); St. Agnes, Isles of Scilly, 17.6 - "A tremendous influx ... involving thousands" (JH & MH); 20.7 - 48; 4.8 - 170 (JH & MH); The Lizard, 18.8 - 800; 19.8 - 8,000 (DB, AG & RCK); SOUTH DEVON (3): Countess Wear, Exeter, 31.7 - 59; 5.8 - 100+ (PB[2] per RMc); Dawlish, 19.8 - 57 (AR per RMc); West Hill, Ottery St Mary, undated - larvae on many garden plants including geranium, fuchsia, lettuce and runner beans (PB); SOUTH SOMERSET (5): Bishops Lydeard, 8.6 - 100+; 5.8 - 200+; 19.8 - 100+ (MDB); DORSET (9): Badbury Rings, 16.8 - 319 (PD); Brownsea Island, 21.8 - many 1,000s (MT); Gaunt's Common, 6.6 - 238; 6.8 - 350; 18.8 - >2,000 (PD); Portland Bird Observatory, 6.6 - 369; 26.7 - 173; 3.8 - 561; 4.8 - 400; 13.8 - 3,000; 19.8 - 2,000 (MC per PD); 12.8 - 3,400, thereafter numerous throughout 9 and early 10 (MC); Studland Heath, 20.8 - estimate of 50,000 to 100,000 over whole area (MT); Swanage, 7.6 - 200 (AG); West Bexington, 4.8 - 1,000; 12.8 - 2,500 (RE per PD); SOUTH HAMPSHIRE (11): Fleet Pond, 13.8 - 320 counted on a butterfly transect (C.R. Hall per BG); Woolston, 5.8 - 262 (ARC per BG); NORTH HAMPSHIRE (12): Farnborough, 22.5 - 50+ (RWP); Selborne, 8.6 - 65; 20.8 - 57 (AEA); WEST SUSSEX (13): Pagham Harbour, 5.8 - c.3,000 (BFS & MSP); EAST SUSSEX (14): Holywell, 13.8 - c.1,000 in 1 trap after 1 hour and c.3,000 in same trap after 3 hours (CRP & MSP); Peacehaven, 22.7 - 94; 2.8 - 233; 11.8 - 56; 13.8 - 82; 19.8 - 74 (CRP); EAST KENT (15): Densole, 7.6 - 1,000s (TR); Dungeness, 8.6 - 245; 26.7 - 270; 31.7 - 200; 5.8 - 300; 13.8 - 242; 14.8 - 460; 2.9 - 570 (per SPC); Dungeness Bird Observatory (daytime estimates), 6.6 - 2,000; 7.6 - 5,000; 8.6 10,000; 9.6 - 10,000; 22.7 - 10,000; 23.7 - 5,000; 8.8 - 5,000 (per SPC); Folkestone Warren, thousands (TR); Greatstone, 7.6 - 363; 31.7 - 174; 4.8 - 222; 5.8 - 507; 13.8 - 138 (per SPC); Littlestone, 13.8 - 250 (per SPC); New Romney, 7.6 - 190; 8.6 - 200; 5.8 - 1200; 17.8 - 250 (per SPC); SURREY (17): Lingfield, 23.7 - 56 (JHC); MIDDLESEX (21): Hampstead, 8.6 - 54; 6.8 - 164 (RAS); BUCKINGHAMSHIRE (24): 7.6 - 100s (GEH); CAERNARVONSHIRE (49): Bangor, 6.8 - 76 (DL per CWP); DENBIGHSHIRE (50): Blaen Y Weirglodd, 5.8 - abundant (SHH & IFS); Gors Maen Llwyd, 5.8 - abundant (SHH & IFS); DERBYSHIRE (57): Lathkill Dale, 16.8 - abundant (SHH); Millers Dale Quarry, 12.8 - abundant (SHH); Monsal Trail, 12.8 - abundant (SHH); Pin Dale, Castleton, 9.8 - abundant (SHH); CHESHIRE (58): Crowden, 14.8 - abundant (SHH); Jacksons Brickworks, Higher Poynton, 8.6 - 101 (SHH); SOUTH-EAST YORKSHIRE (61): Spurn, 6.6 - 150; 7.6 - 450; 21.7 - 60; 25.7 - 1,400; 3.8 - 500; 10.8 - 4,000; 15.8 - 25,000 (BS); NORTH

NORTHUMBERLAND (68): Bamburgh, 5.8 - abundant (JHC); Bamburgh Castle, 6.8 - abundant (JHC); Beadnell, 3.8 - abundant; 6.8 - abundant (JHC); Carshope, Coquet Dale, 9.8 - abundant (JHC); Cragmill, 6.8 - abundant (JHC); Cragside, Rothbury, 9.8 - abundant (JHC); Elwick, 6.8 - abundant (JHC); Farne Isles, 6.8 - abundant, "vast numbers of *gamma* were flying ot at sea heading North" (JHC); Greenhil Rocks, 5.8 - abundant (JHC); Inner Farne, 6.8 - abundant (JHC); Linkhouse, Beadnell, 5.8 - abundant (JHC); Ross, Bamburgh, 6.8 - abundant (JHC); Seahouses Harbour and Town, 6.8 - abundant (JHC); St Aidan's Dunes, 5.8 - abundant (JHC); ISLE OF MAN (71): Calf of Man, 5.8 - 93; 5.8 - "several thousand seen over the island" (TB); Dhoon Maughold, 9.8 - 500 (LK per GDC); BANFFSHIRE (94): Well of the Lecht, Tomintoul, 15.8 - abundant (JHC); MORAYSHIRE (95): Findhorn, 11.8 - abundant (JHC); Forres, 12.8 - abundant (JHC); Tulloch, Rafford, 10.8 - abundant (JHC); ORKNEY ISLANDS (111): east coast, 6.8 - "comming ashore in clouds" (per SGV); North Ronaldsay, 12.8 - 174 (MG per SVG); SHETLAND ISLANDS (112): "everywhere", 6.8 - "Clouds of them reported coming in off the sea or along the coast" with the following estimate made - "arriving along the 120 km length of Shetland at a rate of almost 3million per hour" (MGP); 8.8 and subsequent days - "poor weather obviously affected ... the tideline was littered with dead moths, while it appears everyone fishing inshore in small boats was coming across rafts of moth corpses lying on the sea, with several large "slicks" of dead moths reported on the sea around Fetlar" (MGP); Locality not given, 12.8 - up to 50 on sugar patches (MGP); 13.8 - an estimate of "60 million moths in the 1500 square kilometres of the islands" (MGP); Eswick, 13.8 - 1,100; 18.8 - 5 larvae on lungwort *Pulmonaria* (Pennington 1997).

Initials of recorders

The recorders initials are listed alphabetically so that records can be extracted with relative ease. It is possible that we have unwittingly failed to acknowledge some contributors – if this is the case we would like to take this opportunity to apologize for this oversight.

AB	Dr A. Barker	CR	C. Reagan	IRT	I.R. Thirlwell
AB²	A. Batten	CRP	C.R. Pratt	IS	I. Scott
AC	A. Cooper	CS	C. Smith	JB	J. Badley
AEA	A.E. Aston	CWP	C.W. Plant	JBF	J.B. Fisher
AG	A. Gardner	DB	D. Brown	JEC	J.E. Chainey
AHD	A.H. Dobson	DD	D. Dey	JF	J. Firmin
AJ	A. Jenkins	DD²	D. Dicks	JG	J. Geeson
AJD	A.J. Dewick	DG	D. Gilmore	JH	J. Hale
AME	Lt Col. A.M. Emmet	DJF	D.J. Funnell	JH²	J. Halsey
APF	A.P. Foster	DL	D. Lloyd	JH³	J. Hooper
AR	A. Rosier	DS	D. Scott	JHC	Dr J.H. Clarke
ARC	A.R. Cronin	DW	D. Walker	JJ	J. Jaines
AS	A. Stevens	DW²	D. Walker	JM	J. Maddocks
ASE	A.S. Ezard	DWB	D.W. Baldock	JM²	J. Murray
BB	B. Banson	DWK	D.W. Kydd	JMc	J. McGill
BFS	B.F. Skinner	EGS	E.G. Smith	JMS	Ms J.M. Spence
BG	B. Goater	ERM	E.R. Meek	JN	J. Nichols
BG²	B. Goodey	GAC	G.A Collins	JO	J. Owen
BH	B. Henwood	GDC	G.D. Crane	JP	J. Platts
BIJ	B. Ivon-Jones	GEH	G.E. Higgs	JR	J. Reeve
BJW	B.J. Warne	GRE	G.R. Else	JR²	J. Reid
BM	B. Matlock	HGHM	H.G.H. Middleton	JRL	Dr J.R. Langmaid
BS	B. Spence	ICR	I.C. Rose	JTR	J.T. Radford
CG	C. Gibson	IFS	I.F. Smith	JTS	J.T. Scanes
CH	C. Hart	IH	I. Hunter	JW	J. Wilde

JY	J. Young	PC	P. Costen	RP	R. Partyre
KMSW	K.M.S. Wilson	PD	P. Davey	RWA	R.W. Arthur
KR	K. Redshaw	PHS	Dr P.H. Sterling	RWP	R.W. Parfitt
LB	Mrs L. Barker	PIVS	P.I.V. Sewell	SAKJ	S.A. Knill-Jones
LK	L. Kneale	PMP	P.M. Potts	SC	S. Curson
MC	M. Cade	PP	P. Penhallurick	SCP	Rev S.C. Pittis
MDB	M.D. Bryan	PS	P. Sharp	SD	S. Dewick
MG	M. Gray	PS[2]	P. Smith	SHH	S.H. Hind
MGP	M.G. Pennington	RAB	R.A. Bell	SPC	S.P. Clancy
MH	M. Hicks	RAS	R.A. Softly	SS	S. Stevens
MHS	M.H. Smith	RC	R. Cook	SS[2]	S. Swift
MJG	M.J. Gibbons	RCK	R.C. Kendrick	SVG	S.V. Gauld
MJS	M.J. Simmons	RDP	R.D. Penhallurick	TB	T. Bagworth
ML	Mrs M. Long	RE	R. Eden	TC	T. Crafer
MRH	M.R. Honey	RG	R. Gaunt	TDR	T.D. Rogers
MSP	M.S. Parsons	RH	R. Harvey	TJJ	T.J. Jennings
MT	M. Townsend	RH[2]	R. Hobbs	TJN	T.J. Norriss
MT[2]	M. Tunmore	RH[3]	R. Howard	TNDP	T.N.D. Peet
NB	N. Bowman	RJ	R. Johnson	TR	T. Rouse
NH	N. Hutchinson	RJH	R.J. Heckford	TS	T. Steele
PAC	P. Cordell	RL	R. Long	WM	W. Makin
PB	P. Baker	RM	R. Mearns		
PB[2]	P. Butter	RMc	R. McCormick		

Other contributors

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White-marked *Cerastis leucographa* D.& S. (Lep.: Noctuidae) re-found in Devon

On 28 March 1998, a member of Devon Moth Group, Dr Adrian Henderson, decided to run his lights at a site near to Great Torrington. Here he took six specimens of *C. leucographa* but, mistaking them for something else, released all of them. When he

reported his findings to me, I realised that they could only have been this species; they were recorded on the county moth database, but as there was no voucher specimen I could not confirm the finding. On 1 April 1999, Adrian had two more specimens of this moth, taken in his garden at Bideford. These were retained and are now in his collection.

On 8 April 1999, Alan Jenkins and I visited the original site near to Great Torrington and at around 23.30 hours the first *C. leucographa* came to light, with two others following; two of these were males and the third a female, which subsequently laid eggs which will, hopefully, be bred through.

A further male specimen of this species was captured by Frank Smith, to light at Lower Washfield, near Tiverton, on 17 April 1999. This specimen has since been confirmed by me and has been retained by Harry Wooltorton, from Exmouth.

According to South (1907. *Moths of the British Isles*) *C. leucographa* was "More frequently taken in . . . and Devon". Other records which I have to hand as Devon moth recorder are: Lee Moor, near Plymouth, 1861 to 1865 (J.J. Reading); Exeter and Barnstaple, circa 1870 (G.F. Mathew); Bishopsteignton, one to light 22 March 1953 (W.L. Coleridge) and Huntshaw, near Great Torrington (Rothamsted Insect Survey light trap), two in 1972, four in 1974 and two in 1975, determined by Sue Parker or Joan Nicklen.

The species seems to occur, mainly, in the Bideford-Great Torrington area, but clearly could be more widespread.– ROY MCCORMICK, 36 Paradise Road, Teignmouth, Devon TQ14 8NR.

Cappadaridaceae: An unusual host-plant family record for the cabbage root fly *Delia radicum* (L.) (Dip.: Anthomyiidae)

A sample of maggots submitted to Reading Museum Service in August of 1998 by Mrs T. Aldiss of Chazey Road, Caversham, Berkshire (OS grid reference SU 7075) had been found at the base of spider flower plants *Cleome* sp. (Cappadaridaceae) in her garden where they had been eating away at the stems at and around ground level. The larvae were reared on, producing flies in September and these were identified as cabbage root flies *Delia radicum* (L.). They were slightly smaller than is normal for this species, but this was probably because they were removed from their food before they were fully grown. The cabbage root fly is well known as a pest of cultivated Cruciferae including cauliflowers, cabbages, radishes, turnips and swedes, feeding mainly on the roots but also tunnelling in the stems (Smith, 1989. An introduction to the immature stages of British Flies. *Handbooks for the identification of British Insects* **10**(14)), so this host plant record is significant as it is a entirely unrelated family from that normally attacked. Thanks are due to Brian Baker for collecting the specimens and to Hugh Carter and Nigel Wyatt for identifying them. Voucher specimens have been deposited with Reading Museum Service and The Natural History Museum, London.– DAVID G. NOTTON, Museum of Reading, Reading Museum Service, Blagrave Street, Reading RG1 1QH.

INCREASE IN LOCAL ABUNDANCE AND EXPANSION OF GEOGRAPHICAL RANGE IN THE LEAST CARPET *IDAEA RUSTICATA* (D. & S.) (= *VULPINARIA* (H.-S.)) (LEP.: GEOMETRIDAE) AS INDICATED BY ROTHAMSTED INSECT SURVEY LIGHT-TRAPS

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Introduction

THE LEAST CARPET MOTH *Idaea rusticata* was considered by 19th-century Lepidoptera collectors to be a great rarity and was then known to breed in only a few localities in Kent. Since that time, its stronghold has expanded into several counties in south-east England where, in places, it is now fairly common. Investigation of records on the Rothamsted Insect Survey (RIS) database reveals the species to be increasing in abundance at those sites where it has been recorded for many years. The records also show that its geographical range is considerably larger than previously thought. For ease of reading, details of those RIS trapping sites mentioned in the text are given in tabular form.

Brief history of the status in Great Britain

During the latter part of the 19th- and early 20th-centuries *I. rusticata* was understood to be restricted as a resident species to Kent (Newman, 1869). There were occasional records, often of single individuals, from Sussex, Dorset, Devon and Suffolk (South, 1939). Skinner (1998) states that it is moderately common in north Kent, East Sussex, the London area, Surrey and South Essex. He also confirms the early records from Dorset (Isle of Portland) and cites an unconfirmed record from The Hebrides (St. Kilda). He states that there are occasional widespread records from the south coast of England and that, since 1991, the species seems to have become established on the Isle of Wight and again at Portland.

Recent local increases in abundance and possible range expansion

The RIS operates approximately 90 light-traps of standard design throughout the British Isles. Samples are collected daily and the resulting database holds 1,591 records of *rusticata* from 39 sites in 16 counties (including the Channel Islands of Jersey and Guernsey) for the period 1968 to 1996. Two of these sites, Sheppey and Guernsey, catch the species regularly and have long time-series data-sets which coincide for the period 1981 to 1996. Over this period, *rusticata* has become more abundant at both of these sites – particularly at Sheppey (Fig. 1). These increases are linear on a logarithmic scale and represent a 3.3-fold increase per 10 years at Guernsey and a 15-fold increase at Sheppey.

The difference between the small increase at Guernsey and the relatively large increase at Sheppey suggests a general expansion of range during which the species thrives at new localities in the absence of its usual predators or diseases. In the case

of *I. rusticata*, this possibility is supported by the recent capture at several long-running RIS light-trap sites from where the species had not previously been recorded (Table 1).

Site name	Year trap started	First capture of *I. rusticata*	Total caught
Ewingswode	1974	1996	2
Hamstreet	1988	1995	1
Lydd	1986	1995	1
Rothamsted (Barnfield)	1933	1996	5
Sheppey	1977	1981	687
Warehorne	1988	1993	1
Winchester	1978	1994	2
Yarner Wood	1974	1996	1

Table 1. Long-running RIS sites with year trapping started, year of first *Idaea rusticata* record and total *I. rusticata* caught to 1996.

Idaea rusticata has now been recorded in RIS light-traps in 14 mainland counties plus the Channel Islands of Jersey and Guernsey between 1968 and 1996 (Table 2). The number of sites where it has been recorded in each county is given, along with the number of individuals caught. This list represents a significant increase in our knowledge of the distribution of the species in Britain.

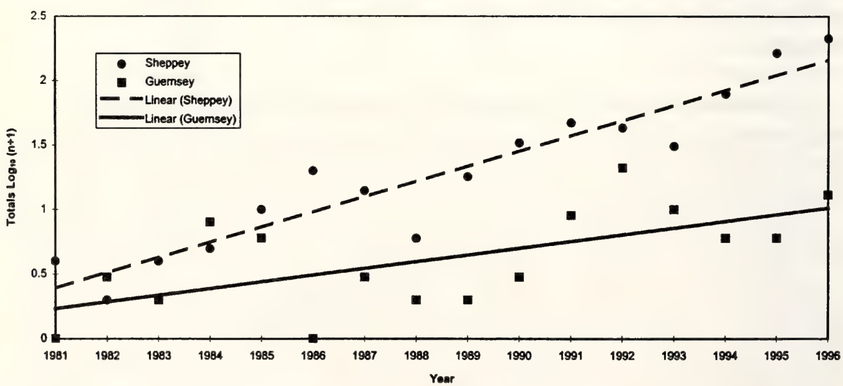

Figure 1. Annual totals of *Idaea rusticata* at Sheppey and Guernsey, 1981-1996. Regression equations (a) for Sheppey: log (catch + 1) = 0.12 year + 0.28 (R2 = 0.89) and (b) for Guernsey: log (catch + 1) = 0.05 year + 0.18 (R2 = 0.40).

County	No. of sites	No. of individuals
Kent	10	756
Essex	7	582
Hertfordshire	4	18
Guernsey	2	94
Jersey	2	43
Surrey	2	40
Middlesex	2	37
Hampshire	2	6
Leicestershire	1	5
Huntingdonshire	1	2
Bedfordshire	1	3
Berkshire	1	2
E. Sussex	1	1
Devon	1	1
Somerset	1	1
Monmouthshire	1	1

Table Two. Counties from which *Idaea rusticata* has been recorded in RIS light-traps, with the number of sites and number of individuals caught.

Site	Site No.	County	OS Grid Ref.
Ewingswode	277	Huntingdonshire	TL 200 797
Hamstreet	472	East Kent	TR 004 334
Lydd	462	East Kent	TR 044 203
Rothamsted (Barnfield)	1	Hertfordshire	TL 132 135
Sheppey	370	East Kent	TQ 949 739
Warehorne	478	East Kent	TQ 988 346
Winchester	379	Hampshire	SU 517 339
Yarner Wood	266	Devon	SX 786 788

Table 3: details of RIS light-trap sites mentioned in the text. A further location is not on the Ordnance Survey grid reference system: Guernsey (Channel Islands) - States Horticultural Advisory Service, St. Martins.

Acknowledgements

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Early emergence of Currant Pug *Eupithecia assimilata* Doubleday (Lep:. Geometridae)

A single male *Eupithecia assimilata* was caught in the Rothamsted Insect Survey (RIS) light-trap at Lanhydrock, Cornwall (Site No. 550, O.S. grid reference SX 099636) on 9 March 1999. First generation adults of this normally bivoltine species usually appear in May and peak during the first week of June (Riley, A.M. & Prior, G., *in press, British and Irish Pug Moths*. Harley Books, Colchester). This individual has, therefore, emerged two months prematurely.

Thanks are extended to the National Trust staff for operating the trap at Lanhydrock.– ADRIAN M. RILEY, Entomology and Nematology Department, IACR - Rothamsted, Harpenden, Hertfordshire AL5 2JQ.

***Sclerocona acutellus* Eversmann (Lep.: Pyralidae) in Devon**

An example of *Sclerocona acutellus* was seen by P. Butter at Exeter, on the evening of 13 June 1999, but the moth escaped after Mr Butter had realised it was "something different". Fortunately, he captured a further specimen to light that same night. The following evening, he and I, together, took a further specimen at dusk. These constitute the fourth and fifth British records and the first for Devon. All the specimens looked fresh.

The first British record of this species was at Leckford, North Hampshire on 18 August 1988 by D.H. Sterling (*Ent. Rec.***101**: 153, 226), also mentioned in *Ent. Gaz.* **40**: 1-3, *Ent. Rec.***102**: 140 and *Br. J. Ent. Nat. Hist.* **5**: 8. Subsequent records are Virginia Water, Surrey, 3 June 1989 by P. Baker (*Br. J. Ent. Nat. Hist.* **7**: 35) and Henley-on-Thames, 20 June 1995 by D. Wedd (*Br. J. Ent. Nat. Hist.* **9**: 225). A colour photograph of the species may be found in *Br. J. Ent. Nat. Hist.* **3**: plate IV).– ROY MCCORMICK, 36 Paradise Road, Teignmouth, Devon TQ14 8NR.

SUBSCRIBER NOTICE

Relative frequency of the banded form of the Riband Wave *Idaea aversata* (L.) (Lep.: Geometridae): a request for data

The ratio between the typical, banded form of the Riband Wave *Idaea aversata* and its plain form *remutata* varies regionally in Britain. In some areas, such as north-east Scotland, the banded form seems not to occur at all. There may also be substantial differences between sites even within the same vice-county, perhaps related to habitat. I would welcome accurate counts of the two forms from any observer who catches adequate sample sizes of this species. Please give location, vice-county and a simple description of the habitat, for instance "suburban garden" or "mature deciduous woodland".– ROY LEVERTON, Whitewells, Ordiquhill, Cornhill, Banffshire AB45 2HS.

A PRELIMINARY LIST OF THE LONGHORNS (COL.: CERAMBYCIDAE) OF FLINTSHIRE

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FLINTSHIRE IS THE smallest county in the Welsh mainland; it is also the most densely populated part of North Wales. Its coastline, largely industrial, faces the River Dee estuary and includes a narrow tongue of land along the Wirral Peninsula on the opposite shore. The hinterland is very hilly and mostly rural.

Prior to its absorption, together with adjacent counties into the administrative region of Clwyd in the 1970s, Flintshire also included a small, peculiar enclave, known as "Part of Flint", sandwiched between the counties of Denbigh and Salop, but in fact within the borders of the latter: upon regaining its county status in 1996, it went to Denbigh; otherwise, Flintshire's boundaries are much as they were prior to 1970.

That said, Flintshire seems to have been woefully neglected where the longicorn Coleoptera are concerned. Records are few and compare unfavourably with those of its neighbouring Welsh counties. Indeed, before 1947 nothing on the county's Longhorns appears to have been published, save a much later reference by Sir Eric Ansorge to the occurrence of *Prionus coriarius* in Flintshire as long ago as 1908.

The present catalogue of cerambycids is the shortest one in the Principality, and suggests, not so much a paucity of these most attractive beetles as, perhaps, a lack of visiting coleopterists. Whatever the reasons, the number of species found up to the present is less than a dozen strong and so these records have been assembled *pour encourager les autres*!

The current list, detailed as far as is known, is as follows:

CERAMBYCIDAE

PRIONINAE

Prionus coriarius (L.) – "Flintshire, 1908", noted by Ansorge some 60 years later but without further information (*vide* text *supra*); Tremeirchion, 8.ix.1968 (Mrs S. Evans); Bodfari, 1970 (W.O. & S.O. Conney).

Again, these last two captures lack more precise particulars.

ASEMINAE (SPONDYLINAE)

Asemum striatum (L.) – Cefn Bychan , circa 1947 and also in 1949 – not uncommon in cut Scots Pine logs (M.G. Fraser); Pantybearth, 14.v.1949 (M.G. Fraser).

Asemum striatum (L.) v. *agreste* F. – Cefn Bychan, 1949 (M.G. Fraser). Found with the above; Pantybearth, 15.v.1949 – similarly captured (M.G. Fraser).

LEPTURINAE

Rhagium bifasciatum F. – Cefn Bychan, 29.iii.1946 – common (G. deC. Fraser); Cefn Bychan, viii.1947 – very common; numerous larvae, pupae and adults were found in fallen Scots Pine logs. A large number of pupae was reared, but no varietal forms were produced (E.A.J. Duffy, M.G. Fraser & R.R.U-K.); Bodfari, 1962 (L.W. Hardwick); Pen-y-maes, 12.iv.1987 (G. Griffiths); Hoseley, 1993 – Several in old pine logs (B. Formstone).

R. mordax (Deg.) – Cefn Bychan, 29.iii.1946 (G. deC. Fraser) and vii.1946 – common on dogroses (M.G. Fraser).

Stenocorus meridianus (L.) v. *chrysogaster* Schrank – Cefn Bychan, vii.1947 – a dead female under bark (M.G. Fraser).

Grammoptera ruficornis (F.) – Cefn Bychan, 6.vii.1946 (G. deC. Fraser). Common on flowers; Ddôl Uchaf NR, 1972, 1.vii.1984 & 6.vii.1989 (the last – Mrs M.J. Morgan & H.N. Michaelis).

Strangalia maculata (Poda) – Bodfari, prior to 1962 (W.O. Conney); Overton, 30.vi.1990, several (B. Formstone).

S. quadrifasciata (L.) – Bettisfield, 24.vi.1957, in coll. University College of North Wales; Fenn's Moss, 8.vii.1992 (B. Formstone).

CERAMBYCINAE

Clytus arietis (L.) – Cefn Bychan, 4.v.1944, vii.1946 and 1947 - on beech logs (M. G. Fraser); Ddôl Uchaf NR, 1972 (*anon.*) and 21.vi.1980 (Mrs M. J. Morgan); Caergwele, 18.v.1992 (M. Newstead); Bryn tirior Hall, 1993 (M. Newstead); Bangor-on-Dee, 1991-1995 (B. Formstone).

LAMIINAE

Pogonocherus hispidulus (Pill.& Mitt.) – Talacre Warren, 24.iv.1993 (S. McWilliam). This is noted in the records kept by the Liverpool Museum.

Finally, it may be of interest to state that a specimen of *Aromia moschata* (L.) was captured sometime before 1963 near Whixall, Salop, within a mile of the Flintshire border. That suggests that this species may possibly occur in Flintshire.

Acknowledgements

Grateful thanks for their information and help are extended to D. Evans, S.P. Fernley, B. Formstone, the late Mrs M.J. Morgan, Miss D. Proctor and Dr P.F. Twinn.

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INFESTATIONS OF *APHIS VERBASCI* SCHRANK (HEM.: APHIDIDAE) ON *BUDDLEJA* AND *VERBASCUM*

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A SEVERE infestation of *Buddleja davidii* Franchet by an ant-attended aphid producing copious honeydew was noted in 1996 and 1997 in the garden of B.M.S. at West Molesey, Surrey. This pale green or yellow aphid was present in huge numbers and formed dense clusters, particularly on the underside of leaves. It was identified by A.J.H. as *Aphis verbasci* Schrank, an uncommon but perhaps now spreading species which is widespread in Europe and typically has species of *Verbascum* as its host plant. This infestation, noted in late summer, was on two bushes, both five to six years old and two to three metres high, and resulted in severe blackening of stems and branches with sooty mould, causing death of many of the inner ones by late season. No attempt at insecticidal or other control of the aphids was attempted, nor is the source of the infestation known.

Aphis verbasci was first recorded in the British Isles from Ilford, Essex, on *Verbascum phlomoides* L. in July 1952 (Doncaster 1954); Stroyan (1984) knew of no other British records. However, further records on *Buddleja*, a host also known for this aphid in Europe, have been made in Britain in recent years indicating a spread of the species. The first British record of *A. verbasci* on *Buddleja davidii* was made by Badmin (1995). In 1992 and 1993 he found it on a plant at Woodstock, near Sittingbourne, Kent. He also refers to heavy infestations on *Verbascum thapsus* L. at Hoo Salt Marsh Island in the Medway estuary in September 1982 and at Great Culand Pit, near Maidstone, Kent in July 1993. Stroyan (1984) also gives *Verbascum sinuatum* L. as a host plant but gives no further details of what is presumably a continental record. Other more recent records, all on garden plants, made by A.J.H. are on *Buddleja davidii* at Petersham, Surrey on 1.vii.97 and at Goldsworth Park, Woking, Surrey on 15.vi.98; on *Verbascum phoeniceum* L. at Knaphill, near Woking, Surrey on 2.vii.97; on *Verbascum* sp. probably *blattaria* L. at Loseley House, near Guildford, Surrey on 3.ix.97; on *Verbascum pulverulentum* Vill. at RHS Garden, Wisley, Surrey on 5.viii.97. On the last-mentioned plant the infestation persisted until mid November. *Aphis verbasci* is a distinctive aphid with a globular body that is usually golden yellow with long black siphunculi. The aphids found on *V. pulverulentum* in August were of the typical colour but by November they had become pale green with a light whitish waxy coating. It reappeared in small numbers on the underside of *V. pulverulentum* leaves in mid April 1998, again in the pale green colour form. On 15.vii.98 the aphid was found on *Buddleja salviifolia*, also at RHS Garden.

Buddleja davidii (Buddlejaceae) is an exotic shrub, native to China and Japan and introduced as a garden plant into Britain a century ago. It is now also widely naturalised and common, especially on waste ground, throughout much of central

and southern England. Flowers of *Buddleja* are rich in nectar (Owen 1991), and the value of this plant as a source of food for insects has earned it the well-deserved popular name of "butterfly bush". It is attractive to many butterflies and is also visited by various moths such as Silver Y, many hoverflies including species of *Eristalis*, *Helophilus* and *Rhingia* (Owen 1983), and some solitary bees such as *Halictus calceatus* (Scop.) (Chinery 1977). It is also utilised in various ways by a range of other invertebrates and Owen (1991) has referred to it as the "most widely used plant species in the garden". Owen D.F. and Whiteway (1980) praise it as a rare example of an alien plant that is a welcome addition to the British flora because of its value to wildlife. Various polyphagous moths are known to feed as larvae on the leaves and Owen D.F. (1983) cites 23 species as known from this host, as well as the holly blue butterfly. It is also host to a number of other polyphagous pest species although, amongst aphids, only *Macrosiphum euphorbiae* (Thomas) (Owen 1991) and the ubiquitous *Aphis fabae* Scop. (Stroyan 1984) appear to have been recorded. There are no true gall-causing invertebrates associated with *Buddleja*, although leaf and flower distortion by the polyphagous nematode *Aphelenchoides ritzemabosi* (Schwartz) may occur (Alford 1991; Buczacki & Harris 1981). In addition, leaves may be damaged by capsid bugs, particularly *Lygocoris pabulinus* (L.), and the weevil *Otiorhynchus singularis* (L.) may also cause damage (Alford 1991). Finally, the spider-mite *Tetranychus urticae* Koch is known to cause chlorotic leaves, with silk webbing in severe outbreaks (Alford 1991). Owen D.F. and Whiteway (1980) also record the polyphagous common froghopper, *Philaenus spumarius* (L.).

Of particular interest is the evident chemical similarity between *Buddleja* and some members of the Scrophulariaceae (Owen 1983, 1991), as shown by otherwise monophagous and specific feeders on plants of the Scrophulariaceae being able to utilise *Buddleja*. *Aphis verbasci* is an example of this; others include the mullein moth *Cucullia verbasci* (L.), and the weevils *Cionus alauda* (Herbst) and *C. scrophulariae* (L.); the last two are occasionally found on *Buddleja globosa* Hope (A.J.H. *personal observation*) and *B. davidii* (Williams 1974). The leaf-mining fly *Amauromyza verbasci* (Bouché), normally on species of *Verbascum* and *Scrophularia*, is also notable and is the only leaf-miner known on *Buddleja* in Great Britain.

Interesting observations on *Buddleja* as a foodplant for insects are given by Owen (1983, 1991).

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Hazards of butterfly collecting — A bad day in Oyster Bay, Tanzania, 1977

I had spent three weeks with a Ugandan colleague, Wilson Okwenje, reviewing the programmes of UMATI, the Tanzanian Family Planning Association. We had criss-crossed Tanzania, but with little chance of butterfly collecting, except a brief and rather embarrassing visit to the upland forest of Uluguru Mountains (see 1992. *Ent. Rec.* **104**: 253-255). So, I was looking very much forward to a day's collecting in the well-known lowland forests of Pugu, just inland from Dar es Salaam – or Dar as it is usually known.

This was in the bad old days before portable computers, so the manuscript of our report had been written in laborious longhand, ready for a typist in Nairobi during a brief stay for debriefing – on my way for another review mission to Ghana. But Sunday was for butterfly collecting in the Pugu Forests.

We had an amicable discussion with the UMATI Board on Friday afternoon; there would not be that much revision to be done during Saturday. We duly repaired to a choice restaurant at Oyster Bay, a Dar suburb. Wilson and I grabbed our briefcases. No, no, no!, said out hosts, we'll lock them in the boot of the car. We had a very fine meal indeed.

Coming back to the car, we saw the lid of the boot flapping listlessly in the wind. Closer inspection showed that my briefcase was missing. Wilson's was still there; the thief obviously had not wanted to wander off carrying two briefcases. "Anything important in the briefcase?", asked our hosts. Well, yes, actually! Passport, credit card, driving licence, health certificates, airline ticket, travellers cheques, currency declaration form, and – of course – a 300 page manuscript summarising the experience of two people after three weeks of hard work!

We went back to the restaurant to take stock. I had heard Danish spoken and went over to inquire – a young, blonde woman turned out to be a secretary to the

Embassy. She said the First Secretary usually checked the telex machine early Saturday morning (yes, 1977 was also before routine fax, not to mention e-mail). She promised to consult and later called to confirm that I could have a new passport in the morning. The Oyster Bay Police were willing to take a statement that evening. Wilson had enough cash to buy me a ticket to Nairobi. Maybe we could still stay on schedule.

I reported to the Danish Embassy in the morning – just opposite my hotel. The First Secretary thought that the police report would act as an exit visa. A new passport was prepared: And now for a photograph? Ah! Photographs were, of course, in the stolen briefcase. I'll run down and have some done – but that was not an option on a Saturday in the Dar of 1977. I suddenly remembered. In my hotel I had a copy of my book on the butterflies of Lebanon, intended as a present for someone in Nairobi. On the dust-jacket was a photograph. Ten minutes later I was back from my hotel. "Not very usual to have a passport photo of someone smoking a pipe", said the First Secretary while carefully cutting it out, "but under the circumstances, I suppose it will do!". In the meantime Wilson had bought me a new ticket and we went back to make notes on revisions to the report.

I made it to Pugu on the Sunday, my first visit to the very interesting coastal forests of East Africa. The total fauna is just some 250 species, many common and widespread, but there are also many endemic butterflies that can be found nowhere else. There is even one endemic genus, *Eresinopsides* (Lycaenidae). It is one of the most threatened habitats in Africa, with Arabuko-Sokoke and the Shimba Hills in Kenya, the lowland Usambaras and the Rondos in Tanzania, and reputedly some larger areas in Mozambique. A most interesting day was had.

Monday, the secretary in Nairobi had a very different job from that expected, as Wilson and I reconstructed the basic framework and the main recommendations of the report. Wednesday saw me with another colleague beginning work in Accra, Ghana. I had never been there before. Conditions were not easy. Any place with an official exchange of 10 cedis to the dollar and a street exchange of more than 90 is in very serious trouble. Every evening I struggled with the reconstruction of the Tanzania report, as if getting to grips with Ghana was not difficult enough in its own right. The occasional total blackout of the flickering electricity provided pause only for frustration, not for reflection. We started writing the Ghana report the day after I finished the Tanzania one. I hope I never again have to do two such reports simultaneously, even under the best of circumstances.

For the next few years my passport was the subject of amusement, suspicion, or hostility by hordes of immigration officers in dozens of countries. The only place the photo was ignored was in Zaïre, where the routine immigration check at the time was: *Tu as quelque chose pour moi, chef?* (You have something for me, boss). I was actually quite relieved when a North African Embassy managed to mislay the passport and, more surprisingly, agreed to pay for its replacement!– TORBEN B. LARSEN, 5 Wilson Compound, 2811 Park Avenue, Pasay City, Metro-Manila, The Phillipines.

MALES OF *DINOCAMPUS COCCINELLAE* (SCHRANK) (HYM.: BRACONIDAE: EUPHORINAE)

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IN VIEW OF the rarity of males (Geoghegan, Majerus & Majerus, 1998) of *Dinocampus coccinellae* (Schrank), a parasitoid of adult Coccinellidae, and the apparent lack of an adequate outline description of this sex in the literature (but see Wright, 1978), it is worth recording that a further three males have become available and that the four specimens now seen are closely similar to their females in general appearance and colouration, such that species level recognition should pose no problems.

The three males that have been available for detailed examination have been compared with 21 females selected at random from the same two rearing cohorts, arising from a heavily parasitised population of *Coccinella septempunctata* Linnaeus collected at Invergowrie, Dundee. From the date of collection, the insects were reared in an insectary at 18-20°C and 16:8 L:D, resulting in precocious development of the parasitoids (which would otherwise have overwintered inside their hosts). The first cohort comprised 50 ladybirds collected from raspberry, *Rubus idaeus* cv., at Invergowrie on 18.ix.97, of which 23 proved parasitised, giving rise to 19 viable cocoons ca 16.x.97, and 1♂18♀ *D. coccinellae* on about 27.x.97. The second cohort comprised 85 ladybirds collected in the same place on 13.xi.97, of which 61 proved parasitised, giving rise to 53 cocoons on about 7.xii.97, and 2♂51♀ *D. coccinellae* on around 18.xii.97. Overall 71 ♀♀ (50 parasitised) and 64 ♂♂ (38 parasitised) ladybird hosts were involved. The three male parasitoids all resulted from female hosts.

Morphologically, *Dinocampus coccinellae* is a distinctive euphorine (Shaw, 1985), being the only known species in the genus *Dinocampus* Foerster, which itself is amply characterised by the rugo-punctate sculpture of its first metasomal tergite, together with the disposition of the vein dividing the first discal and first submarginal cells in the forewing (RS+M *sensu* Shaw & Huddleston, 1991; 1-SR+M *sensu* van Achterberg, 1993), which is directed strongly downward so that there is a distinct second abscissa (2-SR+M *sensu* van Achterberg, 1993), i.e., between its junction with the "recurrent" or transverse mediocubital vein (1 m-cu *sensu* Shaw & Huddleston 1991; m-cu *sensu* van Achterberg, 1993) and the radical sector (IRs *sensu* Shaw & Huddleston, 1991; 2-SR *sensu* van Achterberg, 1993). Both characters apply equally to the two sexes.

In colour, the male is black; but head largely (except for black stemmaticum and dorsolateral borders of occiput), mouthparts, fore coxae below, fore tibiae and femora, mid and sometimes hind femora centrally, and their tibiae obscurely, orange-brown; prosternum (sometimes) and all tarsi dark brown; wing membrane

weakly infumate and most of venation (except for black pterostigma) brownish. Females differ in colour principally in having the metasoma more or less extensively orange-brown posterolaterally (wholly black, except for a small brownish mark in the spiracular region of tergite 2, even in life in the three males so examined), and on average slightly lighter leg colouration. The three males examined in detail, possibly in contrast with the specimen recorded by Geoghegan, Majerus & Majerus (1998; see also Wright, 1978), which is no longer available for examination, are comparable with the females from the same locality in body proportions or even a little stouter (e.g., post-petiole often wider and more rectangular, because spiracles situated on more pronounced angulations – but very variable in the females seen, some of which are markedly asymmetric), and their second metasomal tergites have an appreciably more extensive development of scattered weak striate to rugo-punctate sculpture than in the females. In this population at least, the number of antennal segments seems to be highly conserved, but there is a small sexual difference. The three males whose antennal segments could be counted all had 23, one less than all 21 of the females examined from the same reared cohorts. The shapes of the antennal segments in the two sexes are broadly similar. It is worth noting in passing that of 13 other females with at least one intact flagellum in the National Museums of Scotland that had been reared from *C. septempunctata* in various parts of Britain, eight have 24 segments and five have 23. Two females reared from the markedly smaller host *Coccinellae undecimpuncata* L. have 22 segmented antennae, and one female supposedly reared from *Adalia bipunctata* (L.), but lacking host remains, has 23. Some of these counts are, however, rather arbitrary owing to the sometimes somewhat ambiguous separation of the apical segment.

At various times over several days, these males were observed apparently courting females with which they were confined along with diluted honey, exhibiting the behaviour recorded by Geoghegan, Majerus & Majerus (*in press*) for the earlier individual, and experiencing the same rejection. These three males have now been deposited in the National Museums of Scotland.

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The Phasiinae (Dip.: Tachinidae) of Kent - corrigenda and addenda

Since the submission of my earlier paper (*antea*: 27-35) there have been further records of some of the rarer species together with the discovery of one additional species. Two errors have been detected and these are dealt with first.

Cinochira atra Zett. (p. 27). It was wrongly assumed that Yerbury's name *Melanophora atra* pertained to this species. Wainwright, 1928 (The British Tachinidae. *Trans. Ent. soc. Lond.* **76**: 227) stated that *M. atra* is a synonym of *Melanophora roralis* L. Hence the record from Bearsted actually refers to a species of Rhinophoridae.

Litophasia hyalipennis (Fallén) (p. 29). Dr Ismay's record was from Middlesex (Staines Reservoir) and not South Essex.

R.K.A. Morris, 1997 (The status of *Gymnosoma rotundatum* (L.) (Diptera, Tachinidae) in southern England, *Br. J. Ent. Nat. Hist.*, **10**: 12) depicted the recent occurrence of *Gymnosoma rotundatum* (L.) near Dover in East Kent. The origin of this record was based upon an initial misidentification of the 1985 Lydden Hill specimens of *G. nitens* Mg. by myself and it seems that subsequent communications to the relevant interested parties were not heeded.

Catharosia pygmaea (Fallén)

This species was added to the British list by Falk, 1998 (*Catharosia pygmaea* (Fallén) (Diptera: Tachinidae) new to Britain. *Br. J. Ent. nat. hist.*, **11**: 1-5) from a male and female taken in the Lower Stoke area of Coventry on 17 July 1996. On 25 July 1998 I obtained a single male whilst sweeping an open patch of dry, chalk downland at Wrotham Water O.S. grid reference TQ6260. At the spot were numerous, low growing plants of *Crepis capillaris* (L.) Wallr. and it is possible that the specimen was feeding upon the flowers.

Gymnosoma nitens Mg.

A further single male of *Gymnosoma nitens* was taken by general sweeping at Darenth Park TQ569724 on 26 July 1998. The site largely consists of chalk and flint and contains much marjoram *Origanum vulgare* L. This record adds to the association with calcareous soils.

Litophasia hyalipennis (Fallén)

At about 12.30 hrs. on 15 July 1998, a single male was taken by sweeping at East Blean Wood TR193644. This Kent Wildlife Trust managed reserve is typical mixed deciduous woodland, largely chestnut coppice with oak standards, situated on the London Clay. The precise spot was dominated by bracken *Pteridium aquilinum* (L.) Kuhn. and the vast numbers of wood ant *Formica rufa* L. dictated against looking for a possible heteropteran host. The habitat represents a substantial departure from that of the previously recorded sites.

Phasia hemiptera (F.)

On 1 May 1998, Mr Ian Fergusson presented me with a female obtained earlier that day at Keston Common (TQ 4163). The specimen had been beaten from the lower branches of a conifer and represents the earliest recorded date for the species in Kent.

Only three other phasiines were personally recorded by me during 1998. Single males of *Phania funesta* (Mg.) were found at Romney Sands TR 0823, coastal sand dunes, on 17 May and at Wrotham Water Downs TQ 6360, open chalk downland, on 25 July. A single male *Phasia obesa* (F.) was swept on 28 June from an area of calcareous grassland at Bredhurst TQ 79956175 whilst *P. pusilla* Mg. occurred at the same locality and also at Park Gate Down TR 168459 on 7 July.– LAURENCE CLEMONS, 14 St. John's Avenue, Sittingbourne, Kent ME10 4NE.

Synchronised capture of The Vapourer *Orgyia antiqua* L. (Lep.: Lymantriidae) at lights in England and France?

As a day-flying insect, the male Vapourer is rather infrequently captured in nocturnal light traps, and then usually only if physically dislodged from a nearby perch (or perhaps confused by the mv light into thinking it is daylight?). The females are, of course, flightless. I was, therefore, rather surprised to attract seven or eight males to my lights at Tambrum's Farm, near Battlesbridge, South Essex on the night of 2 July 1999. The traps involved were located on, or just behind, the sea-defence wall of the River Crouch which separates the narrow strip of saltmarsh and tidal mud from the adjacent arable desert. I thought little more of this until the following evening, 3rd July, when I received a telephone call from Michael Marney at his home in Graddé, in the Département du Tarn of south-west France. Whilst discussing his previous night's captures he mentioned in passing that he had taken "several" male Vapourer, and that he was equally surprised to see them there. Michael's garden is surrounded by the Grésigne Forest, an ancient oak forest on limestone geology.

The synchronised emergence of insects is a well-known phenomenon, and in itself is not unusual. However, it does seem rather odd that an infrequent visitor to light should suddenly appear, in number, at separate two light traps on the same night, particularly when they are such a great distance apart. It can be clearly stated that at neither site was there agitation of the adjacent vegetation and so in both cases the moths appear to have arrived without artificial stimulation. I would be interested to know if other readers may have had a similar experience on or around the same date. – COLIN W. PLANT, 14 West Road, Bishops Stortford, Hertfordshire CM23 3QP.

Least Black Arches *Nola confusalis* (Herrich-Schaffer) (Lep. Nolidae) in Hertfordshire

In May or June 1998, I took a specimen of Least Black Arches *Nola confusalis* at Mardley Heath, Welwyn, Hertfordshire. The county recorder, Colin Plant, confirmed that this was, at that time, a new county record, though since then the presence of the moth since 1987 on the Rothamsted Estate at Harpenden has been published in this journal (Riley, *antea*: 71-94). My specimen was not identified until the end of the season, since it had been overlooked as a "micro" and no capture date was available.

On 11 May 1999, and again on 25 May, I was delighted to record this species again at the same place. It was netted at around 22:30 as it flew out of oak woodland towards mv light set up at the wood edge. Apart from Harpenden, the nearest known other records are in Essex (where a strong colony is known at Epping Forest, largely consisting of the dark form ab. *columbina* Image), and a very recent record from Ruislip Woods in Middlesex.

The moth is regarded as widely distributed, but rather local, throughout the British Isles by Skinner (1984. *Colour identification guide to moths of the British Isles*), although recent records may suggest that it is spreading.

Mardley Heath consists of oak-hornbeam woodland (some of which is regarded as ancient), and large areas of birch woodland which has grown over shallow chalk extraction pits. Other noteworthy species recorded at this site in 1998 include Poplar Lutestring *Tethea or* D.&S., Birch Mocha *Cyclophora albipunctata* Hufn., Brindled White-spot *Parectropis similaria* Hufn., Scarce Prominent *Odontosia carmelita* Esp. and Buff Footman *Eilema depressa* Esp.– ROB SOUTER, 54 Willowmead, Hertford, Hertfordshire AL14 2AT.

Least Black Arches *Nola confusalis* (Herrich-Schaffer) ab. *columbina* Image (Lep.: Nolidae) found outside Epping Forest

Examining the contents of my Skinner mv trap on 25 May 1999 I noticed a first for my garden in Bengeo, Hertfordshire (TL 324137) in the form of a Least Black Arches *Nola confusalis*. This is a moth of decidedly local distribution in the county, being recorded only from Harpenden (Riley, *antea* 71-94) and Mardley Heath (Souter, *antea* 198). Further examination of what was a rather greyish specimen suggested that it could be of the form ab. *columbina* previously only recorded from Epping Forest some 25 km to the south east in Essex. The nearest woodland is 1 km away. Colin Plant kindly confirmed this was indeed ab. *columbina* after examination of the specimen and a photograph I had taken.– ANDREW WOOD, 93 Bengeo Street, Hertford, SG14 3EZ.

Brimstone butterfly *Gonepteryx rhamni* L. (Lep.: Pieridae) egg-laying on dock *Rumex* sp.

Whilst walking along a country lane through an area of farmland near Pagham, Sussex, on 26 May 1999, I was most surprised indeed to encounter a female Brimstone butterfly in the act of oviposition on a dock *Rumex* plant. Altogether a total of four eggs were laid whilst I watched, on the under-surface of the leaves. As far as I am aware, buckthorn *Rhamnus catharticus* and alder buckthorn *Frangula alnus* are the only recorded food plants of this butterfly's larvae and this is confirmed in Emmet (1989. *Moths of Butterflies of Great Britain and Ireland* **7** (1): p. 97) who repeats the observation of Frohawk (*Entomologist* **73**: 68-69) that introduced *Rhamnus alaternus* and *R. alpina* may also be accepted.– PETER MAY, 6 Aigburth Avenue, Aldwick, Bognor Regis, West Sussex PO21 3DA.

BOOK REVIEW

World Catalogue of Insects, Volume 1. Hydraenidae (Coleoptera) by **Michel Hansen**. 168 pages. 240 x 170 mm, hardbound. ISBN 87 88757 27 7 and ISSN 1398 8700 for the series. 290 Danish Kroner plus postage (a 10% discount is offered if subscribing to the entire series). Apollo Books, Kirkeby Sand 19, DK-5771 Stenstrup, Denmark, 1998.

This is the first volume of a collection aiming to catalogue the insects of the World, a most welcomed, if ambitious, initiative. It is admittedly a book to be consulted and not to be read. A brief introduction (six pages) gives the minimal information necessary to understand the catalogue, and then it goes directly to what matters: a list of all species of Hydraenidae known so far (although some species described in 1998 are included, it comprehensively covers up to 1997), with information on type localities, full synonymies and distribution by countries. The catalogue also includes four fossil species of extant genera, an exhaustive list of references and a taxonomic index. The taxonomic ordination of the family follows Perkins (1997), with no modifications.

The family Hydraenidae is probably one of the most actively researched at the moment, and a continuous stream of new species can be expected to be described in the years to come. This does not undermine the value of Hansen's catalogue, which will become an obligate reference for future hydraenid workers. It is true that the book will be of limited use for those not specifically interested in Hydraenidae, or for those mostly interested in the British fauna, as only 30 of approximately 1,150 species listed occur in the British Islands. Some changes in nomenclature affect one of these species, however: *Hydraena minutissima* Stephens should now be named *H. flavipes* Sturm, as apparently Stephens did not described a species with this name, but referred to *Elophorus minutissimus* Weber & Mohr, which is in fact within the Ptiliidae. Other changes with respect to standard use are the acceptation of *Aulacochthebius* and *Enicocerus* as valid genera (following Perkins, 1997), each of them with one British species (*A. exaratus* (Mulsant) and *E. exsculptus* (Germar) respectively). These changes are likely to be long-lasting, but the status of other subgenera of *Hydraena* (*Hadrenya, Calobius* and *Cobalius*) is more contentious, and no definitive solution can be offered yet.

The research job behind any World catalogue of this kind is impressive. The assessment of its accuracy and comprehensiveness can only be done through the detailed examination of the small fauna you are more familiar with. This may be unfair, as this is likely to be a small and probably not representative sample, but Hansen's work passed the test with honours: of the Iberian fauna of hydraenids (with approximately 140 species), the one I know best, only two species are missing (one of them described in an obscure journal and never found again) and I could only spot one wrong date and some misspelled Spanish author names. But I have to confess that I had to modify my own particular catalogue with a few more corrections! The risk for minor oblivions and errors like these to be "frozen" after they appear in a major reference work can only be avoided with the publication of future updatings of the catalogue, something that will be highly desirable.

In summary, a high quality work that will be most useful for all interested in Hydraenidae, but also to all researchers in need of updated and accurate data on the diversity and biogeography of an important family of Coleoptera. Let's hope that subsequent volumes of the collection maintain the same standards.

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Ignacio Ribera

THE ENTOMOLOGIST'S RECORD
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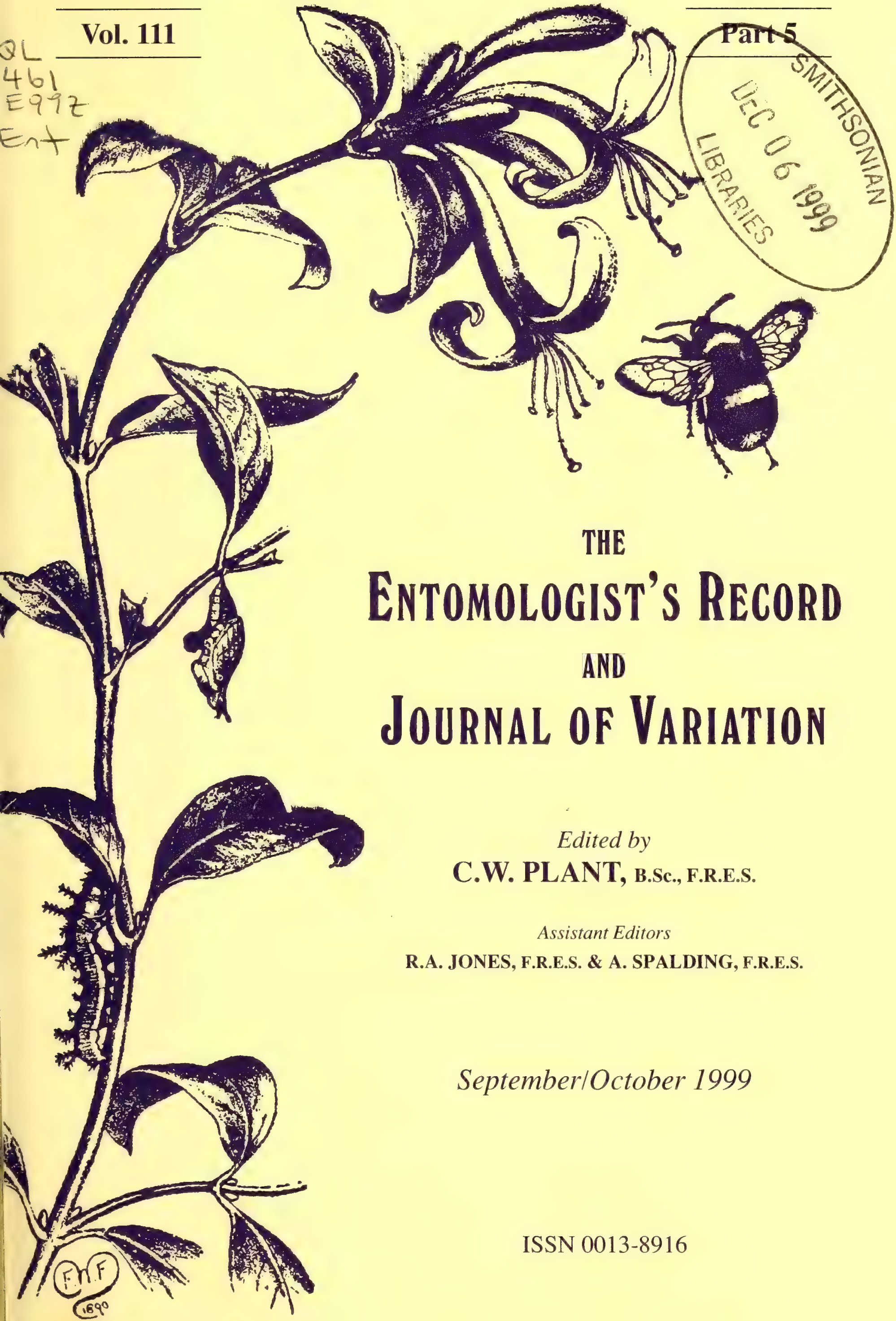

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THE YARROW PUG *EUPITHECIA MILLEFOLIATA* ROESSL. (LEP.: GEOMETRIDAE), NOW APPARENTLY WIDESPREAD AND LOCALLY COMMON IN EAST ANGLIA

JIM REID

7 Flambards Close, Meldreth, Royston, Hertfordshire SG8 6JX.

UP TO THE early 1990s, I had considered *Eupithecia millefoliata* to be a very local species, resident around the Thames estuary and a few locations near to the coast of Kent, Sussex and Hampshire, but occurring as an occasional vagrant elsewhere. This was based initially on the distribution maps produced by the Biological Records Centre at Monks Wood. When, in 1992, I found larvae at Icklingham, in Suffolk, I thought I had made a significant discovery until, on checking my literature, I found that G.M. Haggett had already reported established colonies around Thetford and the Stamford Training Area in Norfolk (Haggett, 1992). I also learned that A.M. Emmett and others had found the Icklingham site in 1991.

Haggett also mentioned the late Prof. Colin Smith's record from Cambridgeshire in 1979. I was aware of this, but attributed it to the species' habit of turning up unexpectedly in widely scattered locations around the south-east. This view was certainly influenced by my previous experience, having found larvae in my back garden in Royston, in 1981. Following this, I spent many fruitless hours, failing to find any further evidence of the species in the Royston area during that season or the next.

My interest in the species was re-awakened when I found larvae in good numbers at Santon Downham, Suffolk, during the last week of September 1998. A striking feature was the range of sizes present – extending from early second instar to pre-pupal. I attributed this to the indifferent summer and well-spaced periods of warmth. Taking a slightly circuitous route back home, I found seven further colonies of larvae near Brandon, Lakenheath, Cavenham and Herringswell.

I wondered how much more widely the species may be found in the East Anglian area. Taking the totality of sites known to me into consideration, I concluded that the best sites for this species would have light to sandy soil, with *Achillea* growing in fairly thin, fine grassland fully exposed to the sun. My thoughts turned to the aptly named Sandy Heath, in Bedfordshire, although I noted that the recently produced County List (Arnold *et al.,* 1997) had no records. From the Ordnance Survey map it was obvious that there were a lot of lanes and bridleways that may need to be examined, so I decided to take a bike. This was an excellent decision, for in this intensively agricultural area, it took me three hours cycling to find just two good patches of *Achillea*, one on the Heath and the other near Everton. Both had larvae, but generally small and not as abundant as in the Breck. Vic Arnold, and county recorder, Len Field, confirm that they have no unpublished records since the book was produced, which makes this a new county record. Encouraged by this, I decided to investigate further the breeding status of the species on the western side of East Anglia.

Following Smith's record, Cambridgeshire was an obvious choice. The soil around the south-west of the city of Cambridge is fairly variable, but light in places and I soon found larvae in good numbers at Trumpington and Grantchester. Within this county, larvae were also found at Sawston, Whittlesford, Duxford, Ickleton, Fowlmere, Barrington and Chrishall Grange, the latter being a bit of an exception in that it was the only site on which larvae were found over a distinctly chalky soil. Most other sites were loam or sandy loam. There is no recent county list for Cambridgesire, but county recorder, Ray Revell, took a specimen at light on 23 July 1978, at a chalk pit near the Gogs golf club and a further specimen was taken by John Dawson at Little Wilbraham Fen on 28 July 1998.

In Essex, the range has expanded since distribution maps were produced by the Biological Revords Centre. It now appears well established in South Essex (Emmet & Pyman, 1985; Plant, 1993), and there has been some expansion northwards in the east of the county, but two moths taken by Maitland Emmett in 1992 and 1995 were previously the only records north and west of Colchester (Brian Goodey, *pers. Com.*). As in Bedfordshire, suitable sites were very hard to find in the area of North Essex which I examined. An area was covered around Saffron Walden and towards Haverhill, but most of the few patches of Yarrow found were on rather heavier soils and no larvae resulted. I had tended to consider roadside verges as generally unfavourable and in Essex this was certainly true, as most had been cut at least once since mid-summer. *Achillea* on narrow, uncut strips within the splash zone at the side of the road was unproductive at the few locations sampled. In Cambridge, however, cutting had been restricted to the edges of some wide verges and at the backs of these verges larvae were quite prolific. Thus, near Saffron Walden, I eventually found some such verges and a single larva resulted at one site on the eastern side of the town. Larvae were more abundant at Audley End and a few were also found at Wendens Ambo and Hadstock.

In Hertfordshire, a thorough search was conducted of lanes, roadside verges and paths within the area bounded by Royston, Barley, Barkway, Buntingford, and Baldock. Some excellent patches of *Achillea* were found along the broad verges of the A505 road and locally elsewhere within the area, including parts of Royston Heath, but no *E. millefoliata* larvae were found anywhere within this area. Despite this, a number of sites had good populations of larvae of *E. icterata*. As in Essex, a large proportion of verges had been cut at a time that rendered them useless to *E. millefoliata*.

In conclusion, it seems that *E. millefoliata* is now resident and widespread over a considerable part of East Anglia and abundant where conditions are ideal. In the more intensely agricultural areas and on heavy soils, it may be difficult to find good patches of *Achillea* anywhere other than roadside verges and these may contain larvae only if the cutting policy permits. The fragility of roadside verge populations was sadly illustrated by the fate of four sites within this survey, which were destroyed by cutting within days of discovery. The fate of most others is unknown.

The management of roadside verges has moved on from the days when they were routinely sprayed with lawn weedkillers, but it is still far short of perfect. Much is now sub-contracted by councils to local farmers and timing is thus governed by the farming calendar. In general, a single cut in late spring and another in late autumn will retain order and floral diversity. Restricting any summer cutting of broad verges to the roadside edge and the inside curve of bends provides good flora over a prolonged period, as many of the species present in the uncut area will flower at a reduced height and later period in the cut area. If the autumn cut is delayed until November, then most Lepidoptera larvae will be off the taller plants and the flowers will have time to set seed, benefiting the continued diversity of wildlife in the verge. Even so, smaller species of plants will continue to struggle against the thick thatch, which is often left smothering the verge after the autumn cut. Is it any wonder that only coarse grasses and tough perennials survive in so many of our verges? Better management of the best verges in an area may need to involve local conservation groups but it is unlikely to be easy to achieve.

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Some records of Lepidoptera from Westmoreland (VC69)

The year 1998 was one of the worst on record in my experience – an experience extending over 60 years. True, I was not able to do much field work – age is catching up on me so that most of my collecting and observations are now restricted to my own small garden in Grange-over-Sands. I operate a m.v. moth trap when conditions (to the human senses) seem likely to be productive. Last year numbers, both of species and individuals, were well down on those of recent years. In spite of this I noted three species of macrolepidoptera that I had never seen in this district before, and believe these may be worth recording.

Polygonia c-album (L.) – A fresh specimen was observed nectaring on a *Buddleja* bush in my garden on 31 July. My wife first noticed the specimen and we had it under observation for about five minutes. This species appears to be experiencing one of its phases of expansion of range. I have heard of other specimens having been observed in this district at about the same date.

Eublemma parva (Hb.) – A fine, fresh, male specimen was taken in my trap on 4 July. It is a specimen with very pale facies and faint markings and would be var. *pallida* Tutt (*vide* Tutt, J.W. *The British Noctuae and their Varieties* Vol. IV: p.11). There are very few records of this species for northern England. Being a small species, it could be readily overlooked – and to the collector of macroplepidoptera could well be mistaken for a "micro". So, its apparent scarcity may well be only apparent.

Lithophane leautieri ssp. *hesperica* Boursin. A specimen of this was taken in my trap on 2 October. It was one of only two moths in the trap (the other was *Aporophyla nigra* (Haw.)). So far as I know, this is only the second record for *leautieri* in VC69; I understand one was taken in Kendal in October 1996 (W.D. Kydd *pers. comm.*).

While moth numbers in the trap were fewer than usual, social wasps (*Vespula* sp.) were far too numerous, so that sorting the catch was often a hazardous procedure.– NEVILLE L. BIRKETT, Beardwood, Carter Road, Grange-over-Sands LA11 7AG.

Plant-bugs (Hemiptera) on Woolwich Common, south-east London

I was much surprised to sweep an example of the Bishop's Mitre shield-bug *Aelia acuminata* (L.) (Pentatomidae), from low mixed herbage at the edge of a strip of semi-woodland in the above locality on 19 September 1998. Officially, this grass-feeding species is no rarity; it may be, or may have been, common enough in some other parts of the country, but this is only the second specimen I have met with, and the first was not here.

Another pentatomid, the striking *Eurydema oleracea* (L.) – already recorded from here in this journal (Allen, 1992: 79-80; 1994: 30) – may be mentioned here on account of the plant on which it occurred. The usual host on Woolwich Common is horseradish *Armoracia,* but on 19 May 1999 one was brushed off hoary pepperwort *Cardaria draba,* which grew in thick masses at the spot. I have no doubt that this is a foodplant; there was no *Armoracia* nearby and in fact it had scarcely begun to appear above ground.

On the same day an example of *Rhopalus subrufus* (Gmel.) (Rhopalidae) was swept from a variety of low plants. Its most usual host, *Hypericum,* was nowhere near. This too is regarded as a common bug, but certainly cannot be so now in the London area, where I had never before seen it. Close by, the coreid *Coriomeris denticulatus* (Scop.) was on its chief foodplant *Medicago lupulina,* as rather often in previous years.

Also in evidence was the curious small hopper *Asiraca clavicornis* (F.) (Delphacidae). This grass-feeder used to be considered a very local rarity, but has proved to be far from uncommon in my district.– A.A. ALLEN, 49 Montcalm Road, Charlton, London SE7 8QG.

ANOTHER NEW SPECIES OF *MORDELLISTENA* COSTA (COL.: MORDELLIDAE) IN BRITAIN

A.A. ALLEN

49 Montcalm Road, Charlton, London SE7 8QG.

Mordellistena eludens **sp. n.**

A SMALL SPECIES of the group of *M. parvula* Gyll. Body black, pubescence short, close, shining yellowish-ashy. Front of head, mouthparts, first four segments of antennae, apical segment of maxillary palpi, and anterior femora, brownish-testaceous; rest of palpi clearer testaceous, of the form normal for the group. Antennae stouter than in the male of *M. parvula* and with apical segment more elongate, longer than the preceding. Hinder half of pronotal side-margins only slightly sinuate in lateral view; hind angles, from above, more than 90° but sharp. Elytra, legs, and pygidial spine normal for the group; accessory spur of hind tibia very short and small. Outer face of hind tibia with two not quite parallel ridges besides the small subapical one (Fig.3), appearing as usual a little different in different lights. Male parameres charateristic (Figs. 1, 2). Length 3mm or rather less.

Holotype male in the captor's collection.

This species is mainly to be known by the distinctive parameres of the male genitalia; the female, unknown as yet, may well be difficult to separate from females of allied species. Adopting the orientation of Ermisch's (1969) figures: the ventral (or inferior) branch of the right arm of the right paramere is remarkably elongate, being much longer than the left arm, somewhat as in *M. falsoparvula* Erm.; it also reaches far beyond the apex of the dorsal (superior) branch – not the case in the last-named, which further has a quite different left paramere. The right one may be likened also to that of *M. bicoloripilosa* Erm., but there the left one, again is quite different. These points taken together will readily distinguish *M. eludens,* in the male sex, from all mid-European species dealt with in the above work.

1 

2 

3 

Figures 1-3: *Mordellistena eludens* sp.n.

1. left paramere; 2. right paramere; 3. outer face of right hind tibia.

The unique specimen was taken by general sweeping on open flowery ground on Mount Caburn, a chalk hill two miles south-east of Lewes in East Sussex, on 19.vi.1993, by Mr R.A. Jones, and submitted to me. Much effort by him and Mr P. J. Hodge at and near the spot has so far failed to yield further material – whence the name I have chosen. Attempts to contact the *Mordellistena* specialist in Prague, Dr Jan Horák, in connection with this insect, have unfortunately met with no success.

The occurrence of yet another member of this genus in England should not occasion great surprise. I know of a further species, likewise apparently unique as British, not yet published.

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Ermisch, K., 1969. In Freude, H., Harde, K.W. & Lohse, G.A., *Die Käfer Mitteleuropas*: 175,177. Goecke & Evers, Krefeld.

Some observations on pigment stability in the wing markings of *Graphium weiskei* (Ribbe) (Lep.: Papilionidae)

Hanging in a display case on my wall are two specimens of *Graphium weiskei,* both taken by myself in Chimbu Province, Papua New Guinea in 1976. Originally these were easily discernible as being of two varieties; one normal and the other having the pink colour of the sub-basal patch replaced by pale-blue. Both of these varieties are illustrated in Parsons (1999. *The Butterflies of Pupua New Guinea: Their systematics and biology.* Academic Press, London). Now they are indistinguishable from each other as, over a period of about ten years, the blue in the one and the mauve in the other have oxidised to bright pink so that only two colours remain in the wing spots and sub-basal patch – green and pink.

Haugum and Samson (1981. Notes on *Graphium weiskei.* Lepid. Gp. of 1968 Newsl, (Suppl.) 1-12) postulated that the colour forms of *G. weiskei* probably resulted from the "degree of photochemical oxidation (or similar influencing factors affecting the live insect)". There now would appear to be three main objections to that hypothesis, namely:

a) Colour varieties are already apparent in fresh imagines (Parsons *loc. cit.*)

b) Colour changes require a long time to occur photochemically, (albeit in dead *G. weiskei*)

c) such a mechanism would appear to require blue to be the original colour of the pigment on emergence and would, in the case of the two varieties considered here, make the blue form much more common than indeed it is. (I have estimated its frequency in the wild to be in the order of 0.001.)

– J.B. Jobe, 13 Willow Walk, Ripon, North Yorkshire HG4 2LS.

IMMIGRANT LEPIDOPTERA TO THE BRITISH ISLES CAUGHT IN ROTHAMSTED INSECT SURVEY LIGHT-TRAPS IN 1993 AND 1994

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Introduction

THE ROTHAMSTED Insect Survey (RIS) operates approximately 90 light-traps of a standard design (Williams, 1948), as part of a national network established during the 1960s to study insect population dynamics and the effects of environmental change (Taylor, 1986; Woiwod & Harrington, 1994). From the daily samples collected by these traps, all macrolepidoptera and some microlepidoptera are identified and counted and the records of species of particular individual interest to lepidopterists are regularly published (e.g. Riley, 1993).

Readers of this journal will be familiar with the annual reviews of immigrant Lepidoptera (e.g. Skinner & Parsons, 1997; 1998) which present collated records submitted by Lepidoptera recorders and collectors throughout the British Isles. In order to complement these reports it is considered desirable to publish records of immigrant species caught in the RIS light-traps as soon as all data are available. It is proposed to do so annually starting with an account of 1993 and 1994.

For the less common species, individual records are cited giving date and site of capture, numbers caught and other details. For ease of reading, the localities of each site are tabulated at the end of the paper. Details of the more common species are tabulated with comparative information from previous years. Unless otherwise stated, all identifications were made by the author. The nomenclature follows that of Bradley (1998).

Records of less common immigrant species in 1993

Numbers caught and identifiers other than the author are given in brackets.

GEOMETRIDAE

The Vestal *Rhodometra sacraria* (L.) – Jersey, 19.8 (one); 27-30.8 (one).

ARCTIIDAE

Speckled Footman *Coscinia cribraria* (L.) ssp. *arenaria* (Lempke) – Guernsey, 16-18.7 (one). (W. Angel)

NOCTUIDAE

Great Brocade *Eurois occulta* (L.) – Castle Eden Dene II, 14.8 (one) and 11.9 (one); Chopwell, 2-4.9 (one.) (T.C. Dunn); Sparsholt, 1.11 (one). (A. Dobson).

The Delicate *Mythimna vitellina* (Hb.) – Guernsey, 24-26.9 (one). (W. Angell). This species is now suspected of being resident in Guernsey (R. Austin, *pers. comm.*).

Flame Brocade *Trigonophora flammea* (Esper) – Guernsey, 5-7.10 (one) and 27.10 (one). This species is caught regularly in the RIS trap in Guernsey and may now be resident there.

Orache Moth *Trachea atriplicis* (L.) – Jersey, 13-29.7 (five). This species is now suspected of being resident in Jersey (R. Burrow, *pers. comm.*).

Records of less common immigrant species in 1994

GEOMETRIDAE

The Vestal *Rhodometra sacraria* (L.) – Alice Holt, 4.8 (one); Llysdinam, 24.8 (one); Starcross, 8.8 (one); 23.8 (two); 26-29.8 (one) (A. Dobson); Yarner Wood, 31.7 (one), 10.8 (one); Ewingswode, 3.8 (one); Wisley, 19.8 (one) (A. Halstead); Denny Lodge, 1.8 (one); Sheppey, 23.8 (one) (G. Burton); Winchester, 22.8 (one), 27-28.8 (one); Lydd, 22.8 (one); Warehorne, 3.8 (one), 2.9 (two); Sparsholt, 5.8 (one), 6.8 (one) (A. Dobson); Bentley Wood, 23.8 (one) (B. Fox); Aberporth, 5-9.8 (one) (I. Tillotson); Jersey, 5-7.9 (one); Porton Down, 4.8 (one), 22.8 (one).

The Gem *Orthonama obstipata* (Fabr.) – Lydd, 24.9 (one); Jersey, 10/11.5 (one); Lanhydrock, 21.8 (one), 6.11 (one).

SPHINGIDAE

Hummingbird Hawk-moth *Macroglossum stellatarum* (L.) – Rhandirmwyn, 6.8 (one).

NOCTUIDAE

Great Brocade *Eurois occulta* (L.) – Stainton, 20.7 (one), 23.7 (one), 2.8 (one) (T.C. Dunn)

Flame Brocade *Trigonophora flammea* (Esper) – Guernsey, 11.10 (one), 13.10 (one), 14-16.10 (one) (W. Angell).

Bordered Straw *Heliothis peltigera* (D.& S.) – Spurn Head, 14.7 (one) (B. Spence); Starcross, 18.8 (one) (A. Dobson); Wisley, 25.8 (one) (A. Halstead); Cockayne Hatley, 3.8 (one) (I.P. Woiwod); Perry Wood, 7.9 (one) (J. Badmin); Lydd, 30.8 (one), 27.9 (one).

				1993			1994		
	H	L	AM	N	S	M	N	S	M
Silver Y	4,434 (1975)	330 (1972)	17.6	641	88	7.28	4,262	90	47.4
Diamond-back	14,578 (1973)	523 (1985)	67.7	1,849	72	25.68	6,706	74	90.62
Rusty-dot Pearl	1,746 (1980)	0 (1972)	2.4	18	72	0.25	619	74	8.36
Rush Veneer	452 (1983)	2 (1972;77)	1.3	3	72	0.04	498	74	6.73

Table 1. Immigrant Lepidoptera in Rothamsted Insect Survey light-traps in 1993 and 1994. H = Highest annual total, 1970-1990. L = Lowest annual total, 1970-1990; AM = Annual mean per site examined, 1970-1990; N = Annual totals, 1993 and 1994; S = Number of sites examined, 1993 and 1994; M = mean per site examined, 1993 and 1994.

Records of common immigrant species

The Silver Y *Autographa gamma* (L.), Diamond-back *Plutella xylostella* (L.), Rusty-dot Pearl *Udea ferrugalis* (Hb.) and Rush Veneer *Nomophila noctuella* (D.& S.) are usually caught in RIS light-traps in numbers large enough to make the listing of individual records impractical. However, it is important to record them as they give a general indication of the strength of

migrant activity. Further, the Silver Y and the Diamond-back are known to be agricultural pests (Carter, 1984). Many collectors and recorders do not operate traps every night and are often not prepared routinely to count large numbers of individuals, whereas the standard equipment and methodology employed by the Rothamsted Insect Survey lends accuracy to this exercise. For each species the annual mean per site and the highest and lowest annual totals for the twenty-year period 1970 to 1990 is given in Table 1. These figures offer a useful yardstick by which to compare the general extent of immigration in any given year.

The four frequently-recorded immigrant species clearly were relatively scarce in 1993 but more common than usual in 1994. This generally stronger immigration in 1994 is also reflected by the substantially larger numbers of scarcer species caught compared with 1993.

Acknowledgements

Thanks are extended to all the operators of the traps listed above for their invaluable participation. Special thanks are due to Rich Austin and Bob Burrow for their expertise on the status of Lepidoptera in Guernsey and Jersey respectively. The author also acknowledges the help of Ian Woiwod and Jim Crawley for their help in preparing the manuscript.

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Appendix 1. Localities of trap sites referred to in the text. The RIS site number and the identifier (if not the author) are given in brackets.

Aberporth	498	Cardiganshire	SN 240 521	(Ian Tillotson)
Alice Holt	46	Hampshire	SU 803 428	(Tim Winter)
Bentley Wood	487	Wiltshire	SU 253 324	(Barry Fox)
Castle Dene II	484	Durham	NZ 427 393	(Tom Dunn)
Chopwell	481	Durham	NZ 136 582	(Tom Dunn)

Cockayne Hatley	336	Bedfordshire	TL 253 494	(Ian Woiwod)
Denny Lodge	268	Hampshire	SU 333 056	(Ian Tillotson)
Embleton	464	Northumberland	NU 232 227	(Betty Dodd)
Ewingswode	277	Huntingdonshire	TL 200 797	
Lanhydrock	550	Cornwall	SX 099 636	
Llysdinam	111	Radnorshire	SO 009 582	
Lydd	462	Kent	TR 044 203	
Perry Wood	451	Kent	TR 046 562	(John Badmin)
Porton Down	555	Wiltshire	SU 204 372	
Rhandirmwyn	346	Carmarthenshire	SN 782 441	
Sheppey	370	Kent	TQ 949 739	(Geoff Burton)
Sparsholt	483	Hampshire	SU 426 318	(Tony Dobson)
Spurn Head	131	Yorkshire	TA 419 150	(Barry Spence)
Stainton	521	Durham	NZ 072 187	(Tom Dunn)
Starcross	149	Devon	SX 972 821	(Tony Dobson)
Warehorne	478	Kent	TQ 988 346	
Winchester	379	Hampshire	SU 517 339	
Wisley	289	Surrey	TQ 065 579	(Andrew Halstead)
Yarner Wood	266	Devon	SX 786 788	

Two further traps are cited which are not on the Ordnance Survey Grid Reference system: Jersey (Site 547), Howard Davis Farm, Trinity, Jersey, Channel Islands. Guernsey (Site 252), States Horticultural Advisory Service, St. Martin's, Guernsey, Channel Islands.

Two unusual micro moths for Somerset

On 9 July 1999, I caught an example of the pyralid moth *Calamotropha paludella* (Hb.) at Berrow, North Somerset (vice-county 6). Goater (1986. *British Pyralid Moths*. Harley Books) does not list Somerset for this species; he states that it is found in Norfolk, Suffolk, Cambridgeshire, Essex, Kent, Hampshire, Dorset and the Isle of Wight, with occasional wanderers turning up elsewhere. This record would appear to be the first for Somerset and it is interesting to note that the species was also recorded as new to Gloucestershire at around the same time this year (see *Newsletter* of the Gloucestershire Moth Group).

On 5 July 1998, D.F. Miller brought me a moth which I identified as *Monochroa palustrella* Douglas (Gelechiidae). This species is generally restricted to the south-east in England, although there is a 1965 record from South Somerset at Selworthy, made by the late Dr H.M. Chappel of Minehead and published in *Proc. Somerset Arch. nat. Hist. Soc.* for that year (John Robbins, pers. comm.).– Brian E. Slade, 40 Church House Road, Berrow, Somerset TA8 2NQ.

A KEY TO EUROPEAN XYLOTINI (DIP.: SYRPHIDAE)

MARTIN C.D. SPEIGHT

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IT IS NOW some years ago that this journal published a key to the British *Xylotini* (Speight, 1981). The present key is an updated version of that key, expanded to include the other species of *Xylotini* known in Europe. Some taxa have been omitted because of their doubtful status, or because they occur only on the far eastern fringe of Europe. Those omitted are *Brachypalpus meigeni* Schiner, *B. nigrifacies* Stackelberg and *Chalcosyrphus nitidus* (Portschinsky).

The most comprehensive of recent European keys to the *Xylotini* is that of Bradescu (1991). Bradescu's keys include *B. meigeni*, but do not cover *Chalcosyrphus jacobsoni* or *C. nigripes*, *Xylota suecica* or *X. triangularis*, which are included here. Andersson's (1988) key to Swedish *Xylotini* species is also helpful. I have incorporated information from both these sources into the present key. It has proved necessary to key out males and females of a number of species separately, and the females of *X. florum* and *X. triangularis* have each been keyed out twice, due to their variability.

In western Europe, it is possible that *Chalcosyrphus eunotus* and *C. jacobsoni* are still being confused and that *Xylota meigeniana* is still confused with *X. abiens*, *X. coeruleiventris* and *X. tarda*, to judge from existing records. In central Europe, similar confusion remains possible between *Chalcosyrphus femoratus*, *C. pannonicus*, *C. rufipes* and *C. valgus*. In particular, the range of *C. rufipes* may be at present underestimated, due to confusion with *C. femoratus* or *C. valgus*. In Britain, the distinct possibility exists that *X. meigeniana* could occur, but would remain unrecognised using existing literature.

Species accounts are not provided here for the species covered by the key, but are provided for most of the western and central European species by Speight (1998).

The full list of genera and species (in alphabetic order) covered by the present key is as follows:

Brachypalpoides
- *lentus* (Meigen, 1822)

Brachypalpus
- *chrysites* Egger, 1859
- *laphriformis* (Fallén, 1816)
- *valgus* (Panzer, 1798)

Chalcosyrphus
- *eunotus* (Loew, 1873)
- *femoratus* (L., 1758)
- *jacobsoni* (Stackelberg, 1921)
- *nemorum* (Fabricius, 1805)
- *nigripes* (Zetterstedt, 1838)
- *pannonicus* (Oldenberg, 1916)
- *piger* (Fabricius, 1794)
- *rufipes* (Loew, 1873)
- *valgus* (Gmelin, 1790)

Xylota
- *abiens* Meigen, 1822
- *coeruleiventris* Zetterstedt, 1838
- *florum* (Fabricius, 1805)
- *ignava* (Panzer, 1798)
- *meigeniana* Stackelberg, 1964
- *segnis* (L., 1758)
- *suecica* (Ringdahl, 1943)
- *sylvarum* (L., 1758)
- *tarda* Meigen, 1822
- *triangularis* Zetterstedt, 1838
- *xanthocnema* Collin, 1939

Key

A. Metasternum with hairs as long as those on the ventral area of the mesopleura . . . .**B**

— metasternum bare or almost bare (hairs much shorter than those on the ventral area of the mesopleura) . . . .**C**

B. Chalcosyrphus

1. Abdominal tergite 3 entirely orange-red . . . . **C. piger**

— abdominal tergite 3 predominantly black, at most with a pair of pinkish-orange side markings 2

2. Abdominal tergite 2 noticeably longer than wide 3

— abdominal tergite 2 wider than long 9

3. Hind femora entirely orange; hind tibiae and tarsi brownish distally . . . . . . ***C. pannonicus***

— distal ends of hind femora black; hind tibiae and tarsi entirely black 4

4. Males (eyes meeting on the frons) 5

— females (eyes separate) 7

5. Hair fringe on the postero-lateral surface of the fore tibiae longer than the width of the tibia in dorsal view; apex of the hind tibia flat, but extended ventrally into a large, triangular flange (reminiscent of a mortar-trowel blade), which is as long as 1/2 the apical width of the tibia (antennal arista dark brown/black; stigma uniformly dark brown/black; haltere knob pale yellow) . . . . ***C. femoratus*** (male)

— no hairs on the anterior pair of tibiae as long as the width of the tibia in dorsal view; apex of the hind tibia with a short, but distinct, keel postero-ventrally, terminating in a minute spike, which is distinctly shorter than 1/4 the apical width of the hind tibia 6

6. Abdominal tergite 4 nearly 1.5x as long as abdominal tergite 3 (arista yellow-brown; stigma usually yellow-brown, but may be darker distally in old specimens; haltere knob grey-brown) . . . . ***C. valgus*** (male)

— Abdominal tergites 3 and 4 of almost equal length (arista dark brown/black apically, but yellow-brown on more than basal half of length; stigma dark brown; haltere knob dark-brown) . . . . ***C. rufipes*** (male)

7. Haltere knob pale yellow; apex of the hind tibia extended ventrally into a large, triangular flange (reminiscent of a mortar-trowel blade), which is as long as 1/2 the apical width of the tibia (antennal arista dark brown/black; stigma uniformly dark brown/black) . . . . ***C. femoratus*** (female)

— haltere knob dark brown; apex of hind tibia extended ventrally into at most a minute spike, which is distinctly shorter than 1/4 the apical width of the hind tibia 8

8. Stigma yellow-brown; arista yellow-brown; apex of the hind tibia with a short, but distinct, keel postero-ventrally, terminating in a minute spike, which is distinctly shorter than 1/4 the apical width of the hind tibia . . . . ***C. valgus*** (female)

— stigma dark-brown/black; arista dark brown apically; apex of hind tibia flat ventrally, without either a postero-ventral keel or spike . . . . ***C. rufipes*** (female)

9. Posterior surface of hind coxae with a patch of short, spinose bristles (abdominal tergites without pale marks, dull, with shining, metallic patches in the place of pale marks; hind femora very stout, dorsally and laterally with numerous short, outstanding hairs, which are pale toward the base of the femur but darker distally) . . . . ***C. nigripes***

— posterior surface of hind coxae without bristles (scattered fine hairs may be present) . . . 10

10. Males (eyes meeting) 11

— females (eyes separated) 13

11. Eyes meeting for a distance greater than half the length of the frons; arista dark brown/black; at least abdominal tergite 3 with a pair of pinkish/orange-brown marks (hair-length features as in *C. jacobsoni*) . . . . ***C. nemorum*** (male)

— eyes meeting for a distance shorter than half the length of the frons; arista pale brownish-yellow; abdominal tergites without pale marks (patches of dense grey-dusting may be present) 12

12. General body surface long haired; many of the hairs on the scutellum distinctly longer than the median length of the scutellum; hairs on the postero-lateral surface of the front tibiae including some distinctly longer than the maximum width of the front tibia in dorsal view; hairs on postero-lateral surface of hind femora as long as the maximum width of the a hind femur in dorsal view; abdominal tergite 2 with a pair of dense, more-or-less rectangular, grey dust spots in the place of the pale marks found in *C. nemorum* (these dust-marks become progressively thin towards the lateral margins of the tergite, so that its surface may be shining for up to 1/3 of its width); mesoscutum with an incomplete, transverse band of black hairs mixed in among the pale hairs, at the level of the wing-bases . . . . ***C. eunotus*** (male)

— general body surface short-haired; hairs on scutellum at most as long as median length of the scutellum; hairs on the postero-lateral surface of the front tibiae all shorter than the maximum width of a front tibia in dorsal view; hairs on posterolateral surface of hind femora distinctly shorter than the maximum width of a hind femur in dorsal view; abdominal tergite 2 with a pair of undusted, mirror-like, brightly shining metallic patches in the place of the pale marks found in *C. nemorum;* mesoscutum entirely pale-haired . . . . ***C. jacobsoni*** (male)

13. Arista dark brown/black; abdominal tergites 2 and 3 each usually with a pair of distinct, more-or-less shining pinkish/brownish-orange marks, which remain only thinly dusted and vaguely shining even when obscure or almost absent (hair-length features as in *C. jacobsoni*); mesoscutum vaguely shining, except for 2 or 4 obscure, matt black, longitudinal stripes (these stripes can be almost indiscernible) . . . . . ***C. nemorum*** (female)

— arista pale yellow-brown; abdominal tergites 2 and 3 each with a pair of densely grey-dusted patches in the place of the pale marks found in *C. nemorum* (these grey dust patches may meet in the mid-line to form a transverse grey band across the tergite); mesoscutum usually mostly dull, dusted grey/grey-brown, except for four matt-black, longitudinal stripes (however, these can also be largely obscured by general, thick dusting, or the mesoscutum can be less heavily dusted, appearing vaguely shining) 14

14. General body surface long haired, many of the hairs on the scutellum distinctly longer than the median length of the scutellum; the hairs on the postero-lateral surface of the front tibiae including some distinctly longer than the maximum width of the front tibia in dorsal view; hairs on posterolateral surface of hind femora as long as the maximum width of the a hind femur in dorsal view; mesoscutum with an incomplete, transverse band of black hairs mixed in among the pale hairs, at the level of the wing-bases . . . . ***C. eunotus*** (female)

— general body surface short haired, the hairs on the scutellum at most as long as its median length; the hairs on the postero-lateral surface of the front tibiae all shorter than the maximum width of a front tibia in dorsal view; hairs on posterolateral surface of hind femora distinctly shorter than the maximum width of a hind femur in dorsal view; mesoscutum entirely pale-haired . . . . ***C. jacobsoni*** (female)

C. Upper and lower mesopleural hairs patches connected across the central area of the sclerite, anteriorly, by scattered, rather shorter hairs (abdominal tergite 3 entirely pale-haired and entirely orange) . . . . ***Brachypalpoides lentus***

— upper and lower mesopleural hairs patches distinctly, and broadly, separated, the area between them entirely bare . . . . **D**

D. Hairs on general body surface very long, those on the scutellar disc including many that are more than 2x as long as the median length of the scutellum; abdominal tergite 3 entirely pale-haired, medially with either upstanding or more-or-less recumbent hairs that are longer than 0.5 the basal depth of the hind tibiae (in lateral view) . . . . **E**

— hairs on the general body surface of short to moderate length, those on the scutellar disc no longer than 1.2x the median length of the scutellum, at the most; abdominal tergite 3 medially with very short (less than 0.25x the basal depth of the hind tibiae, in lateral view), black, recumbent hairs along its entire length . . . . **F**

E. ***Brachypalpus***

1. Males (eyes meeting above antennae) 2

— females (eyes not meeting above antennae) 4

2. Hind tibiae gently curved in apical third; no hairs on the hind tibiae as long as the maximum width of a hind tibia; hairs on general body surface mostly sandy brown (abdominal tergites entirely undusted, brightly shining) . . . . ***B. laphriformis*** (male)

— hind tibiae angled abruptly at about one third from its distal end and with a triangular flange projecting strongly from its ventral surface at about one third from the base of the tibia; hairs clustered around middle of postero-lateral surface of hind tibiae longer than the maximum width of a hind tibia 3

3. Hairs on general body surface rufous; abdominal tergites 2 and 3 generally undusted, brightly shining, but each with a pair of dull, narrow black bars of dusting .... ***B. chrysites*** (male)

— hairs on general body surface very pale brownish yellow; abdominal tergites 2 and 3 thinly dusted dark grey over most of surface, rather dull, but each with a pair of transverse black bars that are entirely undusted, brightly shining .... ***B. valgus*** (male)

4. Hair covering on abdomen reddish-yellow; hair on abdominal tergite 3 reclinate, on disc more than one and a half times as long as the maximum depth of a hind tibia .. ***B. chrysites*** female)

— hair covering on abdomen whitish yellow/brownish and black; hair on abdominal tergite 3 upstanding, on disc no longer than maximum depth of a hind tibia (hair at lateral margins longer) **5**

5. Frons undusted, shining across most of its width, only dusted narrowly against the eyes; notopleural area and indented line of the transverse suture on the mesoscutum undusted, shining; hind coxae black; hind tarsi with second tarsomere about 2 times as long as its maximum width .... ***B. valgus*** (female)

— frons mostly covered in dusting, the two large dust spots almost meeting in the mid-line; notopleural area and indented line of the transverse suture on the mesoscutum heavily dusted grey, dull; ventral surface (at least) of the hind coxae yellow; hind tarsi with second tarsomere distinctly greater than 2 times as long as its maximum width .... ***B. laphriformis*** (female)

F. Xylota

1. Legs entirely black .... ***Xylota suecica***

— legs partly pale (whitish or yellowish) **2**

2. Baso-ventral ridge on hind tibiae covered in short, black spines .... ***Xylota segnis***

— baso-ventral ridge (when present) on hind tibiae bare **3**

3. Abdominal tergite 4 entirely, or almost entirely covered with golden or whitish-yellow hairs (some short black hairs may be present along the basal margin, especially medially, but only within the basal half of the surface of the tergite) **4**

— abdominal tergite 4 black-haired over most of its surface and entirely black-haired medially, from base to apex **6**

4. Abdominal tergite 2 more than one and a half times as wide as long; adpressed abdominal hairs only vaguely golden, more a faded whitish-yellow colour; male hind trochanter with one blunt spike .... ***X. triangularis*** (*pro parte*)

— abdominal tergite 2 as long as wide or only slightly (less than one and a quarter times) wider than long; adpressed hairs on abdominal tergites brightly golden; male hind trochanter with two blunt spikes **5**

5. Hind tibiae black on apical third . . . . ***X. sylvarum***

— hind tibiae entirely yellow . . . . ***X. xanthocnema***

6. Hind tibiae widely yellow at both ends; hind basitarsi (and two succeeding tarsal segments) yellow (abdominal tergites 2 and 3 with orange bands) . . . . ***X. ignava***

— hind tibiae yellow only at the base; hind basitarsi dark brown/black (except in *X. triangularis* female) **7**

7. Hairs on the antero-dorsal surface of the hind femora including many at least as long as half the maximum depth of the hind femur (mesanepisternite 1 usually mostly dusted, dull; fore basitarsus without a long, white, bristly hair dorso-apically; in the male the hyopygium is black-haired) . . . . ***X. florum*** (male, plus female *pro parte*)

— hairs on the antero-dorsal surface of the hind femora all shorter than half the maximum depth of a hind femur **8**

8. Males (eyes meeting above the antennae) **9**

— females (eyes not meeting above the antennae) **13**

9. Abdominal tergite 2 longer than wide **10**

— abdominal tergite 2 wider than long **11**

10. Fore basitarsus with a long, white, bristly hair dorso-apically, which reaches to the apical margin of the second tarsal segment; the pale hairs on the basal half of the antero-dorsal surface of the hind femora are of uniform length, none of them longer than one quarter the maximum depth of a hind femur; wing membrane not infuscated . . . . ***X. tarda*** (male)

— fore basitarsus without a long, white, bristly hair on the dorsal surface; the pale hairs on the basal half of the antero-dorsal surface of the hind femora of uneven length, some of them as long as one third the maximum depth of the femur; wings brownish over much of the apical half of the surface . . . . ***X. meigeniana*** (male)

11. Genital capsule at least partly black-haired; antero-dorsal surface of hind femora with hairs longer than half the depth of the femur clustered within the basal quarter of the length of the femur . . . . ***X. coeruleiventris*** (male)

— genital capsule entirely (or almost entirely) whitish-haired; hairs on antero-dorsal surface of hind femora include some as long as half the maximum depth of the femur, these hairs being scattered over more than the basal half of the length of the femur **12**

12. Dorsum of mesoscutum with a transverse band of black hairs between the wing bases . . . . ***X. triangularis*** (male *pro parte*)

— dorsum of mesoscutum pale-haired . . . . ***X. abiens*** (male)

13. Mesanepisternite 1 with most of surface undusted, brightly shining **14**

— Mesanepisternite 1 with either entire surface, or most of surface dull, dusted **15**

14. Abdominal tergite 3 with a transverse, orange band across anterior half of the tergite; hind femora with middle third of ventral surface covered in black, spiny hairs . . ***X. tarda*** (female)

— abdominal tergite 3 with a pair of pinkish markings, which may be reduced, or obscure; hind femora with middle third of ventral surface almost entirely covered in adpressed, yellow, spiny hairs, any black spiny hairs intermixed being mostly along the lateral margins . . . . ***X. meigeniana*** (female)

15. Hind tarsi with basitarsus and second tarsomere partly or mostly brownish-yellow dorsally (always pale apically), contrasting sharply in colour with the more distal, black segments (pale hairs on abdominal tergites 2 and 3 yellow or whitish) . . . . ***X .triangularis*** (female, *pro parte*)

— all hind tarsomeres almost entirely black dorsally (pale hairs on abdominal tergites 2 + 3 whitish) **16**

16. Longest hairs on antero-dorsal surface of hind femora noticeably more than one third as long as the maximum depth of the femur (nearly 1/2 the depth of the femur) . . . ***florum*** (female, *pro parte*)

— longest hairs on the antero-dorsal surface of the hind femora no more than as long as the maximum depth of the femur **17**

17. Hind tibiae pale whitish yellow on basal third of length . . . . . . ***X. coeruleiventris*** (female)

— hind tibiae pale whitish yellow on at most basal fifth of length . . . . ***X. abiens*** (female)

Acknowledgments

I am most grateful to the following, who have either helped with loan of specimens or in testing the key: Claus Claussen, Ted and David Levy, Tore Nielsen, Colin Plant, Ulrich Schmid, Thomas Moertelmaier. Tore Nielsen has given of his time and experience in both ways, and in translating chunks of Andersson's (1988) key.

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Cinochira atra Zett. (Dip.: Tachinidae) from Blackheath, north-west Kent)

The following records supplement those given by Laurence Clemons in his recent paper on the Phasiinae of Kent (*antea*: 27-35) – from which, having been sent to him, they were doubtless omitted by accident. The species appears rare in the county, and indeed generally, but from its small size and inconspicuous appearance is likely to be much overlooked.

I have two specimens from my former garden at Blackheath, dated 7.viii.1961 and 5.vi.1967, probably found at rest on a fence though this is uncertain; and a third which is defective and dateless. The first was determined by my late friend E.C.M. d'Assis Fonseca (along with some hundreds of other flies).

The lygaeid bugs *Drymus sylvaticus* (F.), *Scolopostethus affinis* (Schilling) and *S. thomsoni* Reuter were quite common in the garden, where one or more of them were very likely the host(s) of *C. atra*.– A.A. ALLEN, 49 Montcalm Road, Charlton, London SE7 8QG.

Updates for three species of moth in south-west Scotland

Bembecia muscaeformis (Esper) Thrift Clearwing

In 1895, Colvend, Kirkcudbrightshire, was reported to be the first and chief Scottish locality for this local insect (McDiarmid, 1895. *Handbook of the United Parishes of Colvend and Southwick.* J. Maxwell and Son, Dumfries). In the absence of further records Heath and Emmet (1985. *The Moths and Butterflies of Great Britain and Ireland,* **2**. pp. 386-387. Harley Books, Colchester) suggested that Thrift Clearwing "could well await rediscovery on coasts of western Scotland". This has proved to be the case, but their suggestion that the moth flies in late-June and throughout July is not entirely helpful, as moths were also found in early June (and the only confirmed record for Cumbria, for St Bees Head, is dated "May 1919'). Careful searching has revealed that the moth still thrives at Colvend and indeed all along the rocky coast of Galloway, being quite numerous under suitable conditions. It prefers warm, calm, sunny conditions, being most often seen from about 10.00 to 13.00 hours, though one was seen as early as 08.30 hours and another as late as 16.00 hours. A few were seen on very windy days in sheltered sunny banks. Recent records are summarised as follows:

VC73 Kirkcudbrightshire – two at Port O'Warren, Colvend (NX 865527) 23.vi.1996; three at Gutcher's Isle (NX 871529) 23.vi.1996; one at Almorness (NX 839525) 15.vi.1997; one at Meikle Ross (NX 654435) 25.vi.1997; three at Meikle Ross (NX 654435) 22.vi.1996; one at Sandgreen (NX 575520) 29.vi.1995.

VC74 Wigtownshire – two at Isle of Whithorn (NX 481360 and NX 479364) 28.vi.1998; six at Mull of Galloway (NX 157304) 15.vi.1997; ten at West Tarbert (NX 136309) 4.vi.1997; two at Belloue (NX 132311) 4.vi.1997; one at Clanyard Bay (NX 102382) 20.vi.1998; two at Lennans (NX 095390) on 21.vi.1998; one at Dunskey (NX 004532) 15.vii.1996; one at Dally Bay (NW 964695) on 13.vi.1999.

Atolmis rubricollis (L.) Red-necked Footman

This species was recorded near Dumfries in the 1860s (Lenonn, 1863. *Trans. Dumfries and Galloway Nat. Hist. & Antiquarian Soc.* 1862-63, pp. 53-61) and was rediscovered near Dalbeattie on 13 June 1992. In more recent years it has proved to be widespread and sometimes numerous in commercial forestry plantations from Lochar Moss to Auchencairn. It can be seen flying in sunshine near the tops of trees,

but is more likely to be recorded when it descends to lower vegetation or to tracks and paths. One was recorded in a spider's web, more than twenty were found drowned in a trackside ditch, and two dozen were seen around willow bushes at the edge of a loch where the water surface was littered with dead or struggling moths. Recent records are as follows:

VC72 Dumfriesshire – three at Cockpool Moss (NY 062679) 17.vii.1996; 50-55 at Cockpool (NY 0667) 1.vi.1997; one near Stanhope (NY 081675) 23.vi.1997; 22 at Racks Moss (NY 033736) 4.vii.1998.

VC73 Kirkcudbrightshire – 15 at Lochaber (NX 9370) 8.vi.1997 and many more in 1998 (Jessie MacKay, *pers. comm.*); one at Carruchan (NX 946733) 5.vii.1998; one at Southwick (NX 926568) 11.vii.1996; four at Plantain Loch, Dalbeattie (NX 8460) 13.vi.1992; six at Almorness (NX 829529) 15.vi.1997; one at White Horse Bay (NX 839525) 15.vi.1997; one at Screel (NX 795549) 4.vii.1996 and 9.vii.1996; 24 at Loch Mackie (NX 808488) 9.vii.1996; one at Cally, Gatehouse of Fleet (NX 598546) on 16.vi.1999.

VC74 Wigtownshire – one at Castle Loch,Lochmaben (NY 084815) on 18.vi.1999.

Apamea scolopacina (Esper) Slender Brindle

This species was first recorded in Scotland at Castle Loch Local Nature Reserve, Lochmaben, on 29 July 1995, with first specimens taken the following year at Kirkton and Drumlanrig. It has subsequently been recorded in a number of localities in Annandale and Nithsdale, and at two localities in Kirkcudbrightshire. The records are:

VC72 Dumfriesshire – one at Castle Loch, Lochmaben (NY 087812) 29.vii.1995; one at Kirkton (NX 972821) 11.vii.1996; one at Drumlanrig Castle (NX 851993) 14.vii.1996; one at Durisdeermill (NS 881036) 2.vii.1997; one at Lockerbie Wildlife Trust Reserve, Lockerbie (NY 126806) 29.vii.1997.

VC73 Kirkcudbrightshire – four single records at Cally, Gatehouse of Fleet (NX 598546) 26.vii.1997, 29.vii.1997, 1.viii.1997, 8.viii.1997; one at Almorness (NX 831525) 26.vii.1998; three at Cally, Gatehouse of Fleet (NX 598546) on 2.viii.1999 and two here on 5.vii.1999.

VC74 Wigtownshire – one at Catle Loch, Lochmaben (NY 087812) on 31.vii.1999; one at Kirkton (NX 972821) on 3.viii.1999.

South of the border, there are old records for the Carlisle area where it is now recorded annually in small numbers. The Scottish records are, therefore, likely to represent an increase in observer effort rather than a sudden northward expansion. Even so, it would be worth keeping an eye out for this species in more northerly localities.

Thanks are extended to Stephen Hewitt of the Tullie House Museum, Carlisle, for data from Cumbria, and to Stuart Graham, Stephen Hewitt and the members of the Grey Daggers (Dumfries and Galloway Group of Entomological Recorders) for contributing records.– RICHARD MEARNS, Connansknowe, Kirkton, Dumfries DG1 1SX.

Second update of early emergences of moths at Selborne

This table continues the comparison (*antea*: 134) between my earliest records of non-hibernatory spring species in 1992-94 with those in 1995-1997. The m.v. light was run here on just over 320 nights during each year of the survey. Of the following 45 species, 33 arrived earlier in 1995-97 than in 1992-94. Two species had the same earliest date in both periods. 23 species were up to a month earlier than is usually expected.

Species	1995-1997	1992-1994	*MBGBI* imago
1925 *Apocheima hispidaria* (D.&S.)	4 Mar 97	15 Feb 93	Feb, Mar
2188 *Orthosia incerta* (Hufn.)	4 Mar 95	4 Mar 92	Mar-May
1862 *Gymnoscelis rufifasciata* (Haw.)	8 Mar 97	13 Mar 93	Apr, May
1025 *Tortricodes alternella* (D.&S.)	8 Mar 97	6 Feb 94	Feb, Mar
2185 *Orthosia populeti* (Fabr.)	10 Mar 97	1Mar 94	Mar, Apr
1852 *Eupithecia abbreviata* (Steph.)	11 Mar 95	13 Mar 93	Mar-May
1917 *Selenia dentaria* (Fabr.)	11 Mar 95	18 Mar 93	Apr, May
2140 *Cerastis leucographa* (D.&S.)	12 Mar 97	7 Mar 94	Mar, Apr
663 *Diurnea fagella* (D.&S.)	12 Mar 95	20 Mar 93, 94	Mar-May
2189 *Orthosia munda* (D.&S.)	18 Mar 97	4 Mar 94	Mar, Apr
1881 *Trichopteryx carpinata* (Borkh.)	23 Mar 95, 97	7 Mar 94	Apr, May
1747 *Anticlea derivata* (D.&S.)	25 Mar 97	29 Mar 94	Apr, May
1927 *Lycia hirtaria* (Cl.)	30 Mar 97	12 Apr 94	Mar, Apr
1750 *Lampropteryx suffumata* (D.&S.)	1 Apr 97	10 Apr 93	Apr, May
1781 *Horisme vitalbata* (D.&S.)	1 Apr 97	26 May 92	May, Jun
2186 *Orthosia gracilis* (D.&S.)	1 Apr 97	12 May 94	Apr, May
2139 *Cerastis rubricosa* (D.&S.)	2 Apr 97	6 Apr 94	Mar, Apr
2425 *Colocasia coryli* (L.)	4 Apr 97	10 May 94	Apr-Jun
2389 *Paradrina clavipalpis* (Scop.)	5 Apr 97	29 Mar 94	Apr-Oct
1919 *Selenia tetralunaria* (Hufn.)	6 Apr 95	22 Apr 92	Apr, May
1858 *Chloroclystis v-ata* (Haw.)	7 Apr 97	7 May 94	May, Jun

Species	1995-1997	1992-1994	*MBGBI* imago
1834 *Eupithecia vulgata vulgata* (Haw.)	10 Apr 95	29 Apr 94	May, Jun
1660 *Polyploca ridens* (Fabr.)	11 Apr 95	29 Apr 94	Apr, May
1906 *Opisthograptis luteolata* (L.)	12 Apr 95	21 Apr 92	Apr-Oct
1936 *Menophra abuptaria* (Thunb.)	13 Apr 95, 97	22 Apr 94	Apr-Jun
2015 *Drymonia ruficornis* (Hufn.)	15 Apr 95	28 Apr 94	Apr, May
1888 *Ligdia adustata* (D.&S.)	15 Apr 96	27 Apr 93	May, Jun
2019 *Clostera curtula* (L.)	18 Apr 97	11 May 94	Apr, May
2006 *Pheosia gnoma* (Fabr.)	21 Apr 95	29 Apr 93, 94	May, Jun
1724 *Xanthorhoe spadicearia* (D.&S.)	21 Apr 97	17 Apr 93	May-Aug
2028 *Calliteara pudibunda* (L.)	23 Apr 95	8 May 93	May, Jun
2011 *Pterostoma palpina* (Cl.)	24 Apr 95	25 May 93	May, Jun
1682 *Timandra comae* (Schmidt)	25 Apr 97	25 May 93	May-Jul
2092 *Agrotis puta puta* (Hb.)	25 Apr 97	13 May 94	Apr-Oct
2087 *Agrotis segetum* (D.&S.)	25 Apr 97	5 Jun 92	May, Jun
1651 *Cilix glaucata* (Scop.)	26 Apr 97	9 May 93	May-Jun
2007 *Pheosia tremula* (Cl.)	26 Apr 97	19 Apr 94	May, Jun
2005 *Peridea anceps* (Goeze)	26 Apr 97	1 May 94	Apr-Jun
2008 *Ptilodon capucina* (L.)	26 Apr 97	13 May 94	May, Jun
1931 *Biston betularia* (L.)	26 Apr 97	23 May 93	May-Aug
2060 *Spilosoma lubricipeda* (L.)	27 Apr 97	8 May 94	May-Jul
2063 *Diaphora mendica* (Cl.)	28 Apr 95	24 Apr 94	May-Jun
2154 *Mamestra brassicae* (L.)	28 Apr 97	28 Jun 93	May-Sep
1759 *Elciptopera silaceata* (D.&S.)	29 Apr 97	29 Apr 94	May-Jul
1768 *Thera obeliscata* (Hb.)	29 Apr 97	2 May 94	May-Jul

– ALASDAIR ASTON, Wake's Cottage, Selborne, Hampshire GU34 3JH.

Hydroporous ferrugineus Stephens and *Hydroporous marginatus* (Duftschmid) (Col.: Dytiscidae) in Dorset

A few months ago, Prof. John Owen suggested that it might be interesting to look for *Hydroporous marginatus* at a site near Cranborne, close to my home. It had been found there by Donisthorpe and reported in the *Entomologist's Monthly Magazine*. The references have been omitted from the species index of the magazine, but the note, entitled "*Hydroporous ferrugineus* Steph.; a new and an old record" is in volume 72 (1936) page 66. Donisthorpe refers to the spot as a locality in Hampshire, but as he mentions Cranborne this is surely an error and his site must be in Dorset. He describes "a sort of lake with a stream running through it" and caught his specimens in the lake on 11 June 1933.

On 4 November 1998 I visited a site some three kilometres north-west of Cranborne where a pond is marked on the Ordnance Survey map (SU 0315). The pond and stream were both dry, but the stream began to flow closer to Cranborne. I soon found *Hydroporous ferrugineus*. Several specimens were netted within a few metres of the spring, but none further downstream. After heavy rain the site was revisited on 13 November 1998. The stream now began a kilometre further upstream. *H. ferrugineus* was still present at the first site, but could not be found elsewhere. By 29 January 1999, the stream had backed up well beyond the pond, which was now full. Two specimens of *H. marginatus* were caught from grass at the edge of a stony section of the stream near the pond; *ferrugineus* was found here and in the pond.– A.J. ALLEN, 56 Windsor Way, Fordingbridge, Hampshire SP6 3BN.

A note on the outdoor incidence of the Death-watch Beetle *Xestobium rufovillosum* (Degeer) (Col.: Anobiidae)

In an interesting article (1998, *Antenna*: 190-200) on this notorious insect, Dr W.M. Blaney states (p.190) that it "is *rarely* reported in the wild, where it is *believed* to occur in the decaying parts of oak and willow trees" (my italics), giving as authorities Birch and Menendez, 1991, and Fisher, 1937. I should like to correct the impression which seems to have got about that the beetle is little known in Britain in the wild – something of which I was not aware. Fowler (1890, *Col.Brit.Isl.* **4**: 191) gives rather numerous localities, many of them obviously referring to outdoor occurrence; Donisthorpe (1939, *Prelim. List Col. Windsor Forest* : 85) writes "In beech, hawthorn and oak trees . . . sometimes in numbers under bark of old oaks." I first found *Xestobium* in a decayed oak trunk in Farningham Wood, West Kent, in April 1933, and in the course of many visits to Windsor Forest and Great Park met with it quite frequently under bark of old oaks, sometimes in plenty; twice in beech, and once in birch. I think this will serve to show that the Death-watch is no rarity in the wild, and have little doubt that it is to be found equally freely throughout its range in old forest and parkland.– A.A. ALLEN, 49 Montcalm Road, Charlton, London SE7 8QG.

THE SMALL SKIPPER *THYMELICUS SYLVESTRIS* PODA (LEP.: HESPERIIDAE) IN NORTH-EAST ENGLAND: HISTORY AND CURRENT STATUS

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Introduction

THE PURPOSE of this paper is to draw attention to the dramatic change in distribution of the Small Skipper *Thymelicus sylvestris* which has occurred in north-east England during recent years. As a result of this change the commonly held view, that *T. sylvestris* is absent from the northern parts of Britain (Howarth, 1973; Thomas, 1986; Thomas & Lewington, 1991) and reaches its northern limit in County Durham (Emmet & Heath, 1989), is outdated.

Early history

T. sylvestris does not appear in any of the early lists of butterfly records for north-east England (County Durham, Watsonian VC 66 and Northumberland, VCs 67 & 68) (Wallis, 1769; Selby, 1839; Wailes, 1857; Robson, 1899) and was still unrecognised in either county or in Berwickshire in publications around the middle of this century (Long, 1959; Gardner, 1962).

Recognition in County Durham

Writing in 1986, Dunn & Parrack were able to refer to rare sightings in 1979 in Fulwell Quarry, Sunderland and to the unexpected finding by Mr R. Quigley of flourishing colonies at the Low Barns Reserve Near Witton-le-Wear in 1985.

Subsequently I found the species to be common along the course of several dismantled railways converted to walkways in County Durham (Bishop Auckland Walkway near Spennymoor, July 1990 and the Castle Eden Walkway near Wolviston, August 1992), in disused magnesium limestone quarries (Wingate Quarry, July 1992 and Bishop Middleham Quarry, July 1993), and elsewhere (Ellis,1991; 1993a; 1993b).

During the last five years the species has become more widespread and frequent throughout County Durham. Some idea of this spread may be gained from the fact that over the period 1995-1997 the local Butterfly Conservation Recorder, Ian Waller, received records for more than seventy different tetrads in County Durham.

T. sylvestris now occurs in very large numbers at some locations in County Durham; for example, in Hamsterley Forest on a sunny day during August 1998 it was possible to see many hundreds of the butterfly, with a dozen or more nectaring on individual burdock *Arctium* plants, mating pairs and ovipositing females.

Recognition in Northumberland

In spite of the remarkable upsurge in the fortunes of *T. sylvestris* in County Durham, initially there was still no evidence that the species was extending its range across the River Tyne and into Northumberland (Cook, 1990). Then, commencing in 1994,

reports began to appear of sightings at a few locations in the southern-most part of Northumberland near Ebchester (Eales, 1995) and on the south and north sides of the River Tyne near Wylam (Dawson, 1995, 1996).

I first saw *T. sylvestris* in Northumberland in August 1995. This was a solitary and worn specimen near the coast at Seaton Sluice (NZ 338768), but I did not report it at the time. During 1996 I was pleasantly surprised to encounter two established colonies of *T. sylvestris* further north at Big Waters Nature Reserve, Newcastle-upon-Tyne and on wasteland around an old pit heap – Weetslade Pit Heap near Wide Open, North Tyneside (Ellis, 1997).

During the 1997 season, whilst making a special survey in south-east Northumberland of old dismantled railways, old pit heaps and industrial wastelands, I recorded *T. sylvestris* in seven additional locations at Tynemouth, North Shields, Wallsend and further north at Cramlington, Bedlington and Hartford Bridge (Ellis, 1998a).

During 1998, between July and September, I recorded *T. sylvestris* at five further locations in Northumberland – near the coast at Hartley Links, South Blyth (NZ 321789) and inland at Stannington (NZ 182813), Ingoe Moor at Wallridge (NZ 059766), Prestwick Carr north of Ponteland (NZ 184742) and in Slaley Forest (NY 975551).

In addition there have been occasional sightings from further north in Northumberland, as, for example at Pauperhaugh near Rothbury in August 1996 (S. Hackett, *pers. comm.*).

Discussion

It is clear that *T. sylvestris* is now widespread and well-established in County Durham and has spread to Northumberland, where it is already established and flourishing at several localities.

T. sylvestris seems to have followed in the "flight path" of the Wall Brown *Lasiommata megera* and the Large Skipper *Ochlodes venata* butterflies which have successfully extended their ranges throughout County Durham and subsequently in Northumberland during the past twenty years (Ellis, 1994; Ellis, 1998b).

The reasons for these welcome changes are not fully understood, but improving climate, reduced atmospheric pollution and availability of a suitable habitat may have all contributed (Ellis, 1998b).

Many of the present *T. sylvestris* sites in the north-east are along the courses of dismantled railways, on old pit heaps, in abandoned quarries and on other derelict land. Some of these, which have already been converted to walkways and reserves, should provide a stable environment for years to come, but some are currently under threat, as at Weetslade Old Pit Heap, Wide Open, where work to "clean-up" and "improve" the site appears to be imminent. This is largely unavoidable since some of these old industrial sites are a potential hazard once public access is permitted. At least they have provided a temporary base from which further expansion of the species can occur, and there is always the hope that following the reclamation work parts of the sites might retain and support permanent colonies.

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Lampronia fuscatella (Tengst.) (Lep.:Incurvariidae) and Dichomeris marginella (Fabr.) (Lep.: Gelechiidae) new to Glamorgan

On 21 June 1998, on emptying the previous night's catch from his garden trap in Roath, Cardiff, David Gilmore, a founder of the Glamorgan Moth Recording Group (GMRG), discovered a moth that he thought was *Lampronia fuscatella.* He passed it to me and I confirmed this determination, but as the species did not appear to have been previously recorded in Wales, let alone Glamorgan, I showed the specimen to county recorder Barry Stewart. He studied the specimen and agreed that the moth was *fuscatella.* On 11 May 1999, David passed on a further specimen, this time captured by Stefan Golaszewski in his garden at Llanishen, Cardiff, around two miles north of where the first individual was captured. This too proved to be *Lampronia fuscatella.* The discovery of this second individual in the same general area, but a year later, appears to indicate the presence of a colony of this species centred on the northern suburbs of the city.

On 24 July 1998, at the field meeting of the GMRG at Crymlyn Bog NNR, Mike Powell handed on to me a moth he had captured in his garden at Llanishen, Cardiff, earlier the same day. I identified it as *Dichomeris marginella,* the Juniper webber, which appeared to be a new species for VC41 (Glamorgan). However, David Gilmore (who, along with Barry Stewart, keeps a database of records for the GMRG, of which all those named in this note are members), informed me that two individuals of this species had been captured by Steve Moon in his garden trap at Porthcawl, as long ago as 16 and 18 July 1996. David Slade had identified these specimens, but had not been aware that they represented the first records of *marginella* for Glamorgan. Dr G.A. Neil Horton, in his book *Monmouthshire Lepidoptera – The Butterflies and Moths of Gwent* (1994) lists only a single record for that county (Llansoy, 26 June 1990), so evidently the species is of fairly local occurrence in south Wales.– MARTIN J. WHITE, 8 St Nicholas Square, Maritime Quarter, Swansea SA1 1UG.

Eastern Bordered Straw *Heliothis nubigera* H.-S. (Lep: Noctuidae) new to Devon

On 5 January 1999, Mr K. Bailey of Thorverton, took a moth that was fluttering at his kitchen window; he brought the specimen inside in a pill-box and realised that he had "something different". After the specimen had settled down, he identified it as an Eastern Bordered Straw *Heliothis nubigera.* The weather that evening was warm, but I have no reports of other migrants at that time. I visited Mr Bailey's home on 7 August and confirmed the identification. There are no earlier records that I can find of this species in Devon, and so I can only conclude that it is new to the county. This would also appear to be only the fifth British record of the species.– R.F. McCORMICK, 36 Paradise Road, Teignmouth, Devon TQ14 8NR.

RETURN OF THE *COMMA POLYGONIA C-ALBUM* L. (LEP.: NYMPHALIDAE) TO NORTHUMBERLAND: HISTORICAL REVIEW AND CURRENT STATUS

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Introduction

THE HISTORY of the fluctuations in the range of the Comma *Polygonia c-album* within the British Isles has been admirably reviewed by Pratt (1986-87). The generally held view that *P. c-album* no longer occurs in north-east England (Dunn & Parrack, 1986; Thomas, 1986; Emmet & Heath, 1989; Thomas & Lewington, 1991), was correct at the times of publication of these standard texts, but during the 1990s there has been an expansion of the range of *P. c-album*, initially in County Durham and subsequently further north in Northumberland.

The purpose of this paper is to draw wider attention to this remarkable expansion of the range of *P. c-album* into Northumberland (Watsonian Vice-Counties 67 & 68), by reviewing the historical aspects of its former distribution, and by reference to more recent records and to personal observations made in Northumberland during the period 1995 to 1998.

Early history in Northumberland (18th & 19th centuries)

The earliest known record is that of the Rev. John Wallis (1769) who was curate at Simonburn in Northumberland. At the time scientific names were not well-established and each of the nine species of butterfly listed by Wallis is given a short descriptive title in English. The Comma is readily recognisable as "The tortoife-fhell Butterfly with lacinated wings" and Wallis states that it "is not unfrequent in vale meadows, and gardens in Auguft". Although Selby (1839) does not mention the Comma in his list for Twizell and the surrounding countryside near Belford Northumberland, it was subsequently revealed by Robson (1899) that there was a specimen in the Twizell collection when he had it examined. Wailes (1857) considered that the Comma (*Grapta c-album*) was probably more widespread in Northumberland than was generally appreciated. At the end of the 19th century, Robson (1899), stated that the Comma (*Vanessa c-album*) was not so abundant as it had been thirty years earlier in north-east England and mentions only one record for Northumberland.

It is difficult to ascertain the true state of affairs at the end of the 19th century. Pratt (1986) concluded that the species became extinct in Northumberland after 1868 and Newman (1871) states he saw a specimen in1868 from Northumberland taken near Newcastle by a Mr W. Maling.

20th century records in Northumberland

A casual capture was made at Rothbury at the beginning of the century, in 1904, but nothing further was reported until a single individual was observed nectaring on devil's bit scabious at Cockle Park in late September 1942 (Dunn & Rogerson,

1942). Further solitary individuals were seen by B.N. Rossiter at Hackwood near Hexham in July 1985 (Dunn & Parrack, 1986) and by Bell (1993) at Bamburgh on the Northumberland coast in early October 1992. During 1995 there were sightings in July and August of individual butterflies on an allotment at Wylam (Swinburn, 1996) and on *Buddleja* at Ordley near the Devil's Water (Rossiter, 1996). In September 1996, Banks (1998) sighted a Comma at Arcot Pond north of Morpeth and a single specimen was seen in August 1997 in the southernmost part of the county near High Acton Mill (Eales, 1998). There are additional records for Newcastle and Slaley Forest during 1996 and Bamburgh in 1997 (Parrack, 1998).

Personal records 1995 to 1998

During this four year period I have observed *P. c-album* at eleven different locations within nine different tetrads (2Km X 2Km squares) in Northumberland.

I first saw a Comma in Northumberland nectaring on *Buddleja* in my small garden at Tynemouth (NZ 358701) on 10 August 1995 (Ellis, 1996a). The following spring, on 13 May 1996, I watched a single individual nectaring on dandelion flowers in the valley of the River Wansbeck west of Bothal weir (NZ 229862). This is a woodland path alongside the river and the butterfly may have hibernated in the wood over the 1995-96 winter (Ellis, 1997a). Later in the year I saw a further individual on 10 September 1996 several kilometres downstream in the Riverside Country Park near Ashington (NZ 262864) (Ellis, 1997b).

In the spring of 1997 I recorded four different individuals (Ellis, 1998a). Three were again in the valley of the River Wansbeck between Morpeth and Bothal; one near the viaduct (NZ 215865) and another near the Jubilee Well (NZ 221860), both on 29 March 1997. The third, on 23 April 1997, was close to the previous year's sighting near Bothal weir. The fourth spring sighting that year was at a new location in the valley of the River Blyth near Humford weir, Bedlington (NZ 261797) on 28 May 1997. The butterfly was perched on a riverside elm tree.

During the summer of 1997 (Ellis, 1998b) I encountered two further Comma butterflies near Humford; one on 31 July was on the riverside woodland path (NZ 266803) and the other, on 29 August and 5 September, was feeding avidly on ripe blackberries in a hedgerow at the edge of a nearby plantation (NZ 264806). In the autumn of 1997, Comma butterflies visited my garden in Tynemouth to nectar on various flowers on 5, 18 and 20 October. Only one was seen at any one time, but comparison of the wing markings in photographs subsequently confirmed that there were at least two individuals (Ellis, 1998b).

1998 proved to be the most rewarding season to date when I saw five different individuals at five different locations in the springtime. In the summer, in addition to adults, I discovered pupae for the first time in Northumberland. The 1998 observations are summarised here in chronological order:

15 March	Valley of River Wansbeck, near the Community Tip east of Morpeth (NZ 212868). One adult nectaring on "pussy-willow" (sallow) flowers.
28 March	Tynemouth, garden (NZ 358701). One adult basking and nectaring on blue Hyacinth.

30 March	Holywell Dene, Seaton Sluice (NZ 336761). One adult nectaring on lesser celandine.
25 April	Valley of River Wansbeck, west of Bothal weir (NZ 232863). One adult basking.
7 May	Valley River Blyth, Humford Bedlington (NZ 266804). One adult.
31 July	Tynemouth, near The Haven (NZ 371691). One adult.
13 August	Valley River Blyth, Humford Bedlington (NZ 266804). One adult and two pupae on elm by riverside path. One pupa emerged.
21 August	Same locality, one adult (NZ 264808) and two additional pupae (NZ 266804).
25 August	Same locality, four adults (NZ 266804). Three pupae emerged.
14 September	Gosforth Park Reserve, Newcastle-upon-Tyne (NZ 260699). One adult nectaring on flowers in Lodge garden.
7 October	Fourth pupa at Humford had emerged; empty pupal case suspended from elm leaf.

Discussion

The early records indicate that the Comma occurred in Northumberland during the 18th century, but subsequently became less frequent and disappeared sometime in the last third of the 19th century. The situation was similar further south in County Durham (Wailes, 1857; Robson, 1899), to the north in Berwickshire (Long, 1959) and in Scotland (Thomson, 1980).

Although the Comma is known to have spread northwards in Britain as far as Yorkshire during the 1980s (Sutton & Beaumont, 1989), and the very occasional individual stray appeared in Northumberland during the first half of the 20th century (Dunn & Rogerson, 1942), there was no indication of the remarkable events to come until the 1990s. Initially, from 1992, there were increasing numbers of sightings in County Durham (Jones, 1993; Greenshields, 1995; Waller, 1996, 1997; Coult, 1996, 1997; Bowey & Westerberg, 1997; McCutcheon, 1997; Donnison, 1997; Wynn, 1997) and in the last few years the species, although still uncommon, has become more widespread in the county (Ellis, 1997) and is known to be breeding in several localities, including Castle Eden Dene (Eales, 1997; Parrack, 1998). Currently there are just over eighty tetrads recorded in County Durham (VC66) which account for about three-quarters of the tetrads in which the Comma has been recorded in North-east England (VCs 66, 67, 68).

From 1995 onwards, the increasing number of sightings in Northumberland gave rise to the hope that the Comma had returned to that county too as a breeding species. There are progressively fewer records northwards in the region. Thus, of the 31 tetrads in the whole of Northumberland, 26 are in South Northumberland (VC67) and only five in North Northumberland (VC68). It has to be admitted that in Northumberland the majority of the records have been solitary individuals, which could be dismissed as strays. However, my own observations in south-east Northumberland suggest otherwise.

Although I have been observing and recording butterflies in Northumberland for thirty-five years since 1964, it was not until the summer of 1995 that I saw my first Comma in the county – in my garden at Tynemouth. Since then, I have seen at least 23 different individuals, with increasing numbers each year to a maximum of 12 in 1998. The few early personal records in 1995 and 1996 were consistent with casual strays reaching Northumberland from further south, but the later records suggest that colonisation might be occurring. This view receives support from the observation that some 43.4% of my records were of individuals sighted in springtime, consistent with them having overwintered in local woods. My finding of individuals at one locality in the valley of the River Blyth, Humford, near Bedlington, in successive springs and summers (1997-98) is particularly interesting and suggestive of local colonisation. Further support comes from the findings of pupae at this location.

This is the first time I have found the pupae of *P. c-album* in the wild in Northumberland. Each pupa was suspended from the underside of an elm leaf mid-rib or stalk. One, high up at about four metres above the ground, had already emerged when first found. At this distance it closely resembled a curled brown leaf. Another three pupae were initially intact and were located up to two metres above the ground. In each instance the leaves distal to the pupa showed evidence of having been eaten by a caterpillar.

Most of my sightings of adults have been on or near elm trees, especially those with regenerating stumps after felling. The caterpillars may utilise a wide variety of foodplants including hop, stinging nettle, elm, currants, thistle and mallow (Pratt, 1987). Further south in Britain, stinging nettle seems to be mostly used (Thomas & Lewington, 1991), but it seems that the primary foodplant varies from one part of the country to another, depending upon what is available. My, admittedly limited, experience in Northumberland suggests that elm is a significant local foodplant and it is interesting to note that caterpillars have also been found feeding on elm leaves in County Durham (Waller, 1997).

When the caterpillars feed on lowly plants, such as nettles, it is said that they pupate low down amongst the vegetation and are very difficult to find (Thomas, 1986; Emmet & Heath, 1989). In the case of elm at least some of the pupae are to be found in an exposed position suspended well up in the trees from the underside of the leaf mid-rib, where they are not too difficult to find.

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***Sideridis albicolon* (Hb.) (Lep.: Noctuidae) at Dartford, Kent**

A male of this species was attracted to my garden m.v. light on 21 May 1999. Chalmers-Hunt (*Butterflies and Moths of Kent,* sup. in *Ent. Rec.* **76**) quotes only one previous record for Vice-County 16 (West Kent), a specimen at light at Lee, 19 June 1954, and no additional records are listed in Plant (1993. *Larger Moths of the London Area*).

Unless others are observed, this Dartford specimen, the identity of which was kindly confirmed by Bernard Skinner, must be regarded as a vagrant, not necessarily from the Kent coast or Breckland, but probably more likely from the south-west. Collins (*Larger Moths of Surrey,* 1997) makes some interesting comments concerning *S. albicolon* in that county. For the 1976 to 1996 period he states that the species was a scarce resident of the heathland of south-west Surrey, but in the 1950s occured more commonly in the north-west. L. and K. Evans (*A Survey of the Macro-Lepidoptera of Croydon and N.E. Surrey,* 1973) mention that several specimens were observed at light at Putney in 1951. Thus, it appears that a temporary extension of range occured in the 1950s, and the Lee specimen was probably associated with this.– B.K.West, 36 Briar Road, Dartford, Kent DA5 2HN.

***Tachystola acroxantha* (Meyrick) (Lep.: Oecophoridae) in Somerset**

We have been running a Heath trap in our garden at Weston-super-Mare in North Somerset (vice-county 6). Between 3 July, our first night of operation, and 31 July 1999, we caught 46 specimens of the oecophorid moth *Tachystola acroxantha.* This seems a remarkable total for a moth of which there are very few Somerset records to date and is clearly worth recording.

The species is one which is spreading in Britain from its Cornwall base and it has evidently spread east as far as Hampshire, whilst there is an isolated and currently unexplained record from the Manchester area too (Langmaid, pers. comm.). In Somerset it has been recorded at Berrow by B.E. Slade, some eleven miles from Weston, between 1993 and 1999. The numbers taken in our garden suggest that it is now established in the area.

Also of interest was the capture of two examples of the Feathered Ranunculus *Polymixis lichenea* (Hb.) on the same night, 9-10 July 1999, some two months in advance of the normal flight period here.– Andrew Slade & Wendy Farrar, 3 Norfolk Road, Weston-super-Mare, Somerset BS23 3BG.

CHANGES IN THE ANT (HYM.: FORMICIDAE) FAUNA OF A SWEDISH BOGLAND AREA 1986-1997

C.A. COLLINGWOOD

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Introduction

A WOODLAND HABITAT near the village of Flöghult, 16km east of Strömstad was visited over a period of eleven years and the ant fauna studied. The area comprised three large open mires or bogland habitats with characteristic mire flora, including a few stunted *Pinus sylvestris* and scattered *Alnus* and *Betula* trees. At the time of the first visit in 1986, the bog ants *Formica uralensis*, *F. forsslundi, F. transkaucasica* and a bogland form of *Myrmica scabrinodis* were found in several flourishing colonies. In 1997, *F. transkaucasica* which had been abundant had almost disappeared and was only found sparsely in one of the bogs; one very small nest of *F. forsslundi* was seen and *F. uralensis* had disappeared. *M. scabrinodis* and a variety of other species were still plentiful but the three bogland areas had been overrun by flourishing colonies of *Lasius platythorax*.

At the time of the first visits in 1986 and 1988, ants of the *Lasius niger* species-group were scarce and found only around domestic premises and sparsely in old quarry workings. Much of the woodland had been drastically thinned in the years 1994 and 1995 and much of the woodland floor consisted of exposed tree stumps, fallen trees and discarded branches. An evident population explosion of *Lasius platythorax* had occurred by 1997 and almost every unshaded tree stump was occupied by a flourishing colony of this species. In every nest, winged sexuals were abundant. These ants were also seen in large quantities in bog tussocks in the mires and are presumed to have decimated the more specialised bogland ants with the exception of *Myrmica scabrinodis* and *M. ruginodis* which were plentiful. The only *Formica* species found in the main bogs were *F. fusca*, *F. sanguinea* and, once only, *F. lemani*. *Lasius platythorax* was recognised and described as a good species by Seifert (1991). It is very similar in aggressive behaviour, activity and appearance to the well known *L. niger* so characteristic of urban habitats. Seifert (*op. cit.*) showed that *L. platythorax* differentially occupied woodland habitats and characteristically nested in semi-rotten tree stumps. Another process involved in the decline of the more specialised bog ant species was almost certainly the slow, but progressive, drying-out of the bogland areas, but there was always a residuum of permanently wet patches and the dramatic decline of *F. transkaucasica* in particular is attributed to aggressive competition by *Lasius*.

A list of all ant species recorded from the vicinity of Flöghult is given below.

Myrmica lobicornis Nyl. – scarce, on dry banks only;

M. rubra L. – occasional in bog or banks near streams;

M. ruginodis Nyl. – general everywhere;

M. sabuleti Meinert – in open sandy areas rather local;

M. scabrinodis Nyl. – abundant in bog but not in woodland;

M. schencki Em. – rare in sheltered sun exposed area only;

M. sulcinodis Nyl. – locally flourishing in drier bog;

M. (Sifolinia) karavajevi Arnol'di – in *M. scabrinodis* nest;

Leptothorax acervorum Fab. – common in both bog and woodland;

L. muscorum Nyl. – occasional;

L. tuberum Fab. – occasional in stumps;

Formicoxenus nitidulus Nyl. – in nests of *Formica lugubris*;

Harpagoxenus sublaevis Nyl. – seen once only with *L. acervorum*;

Tetramorium caespitum L. – local lakeside sand;

Camponotus herculeanus L. – common throughout the woodland;

C. ligniperdus Latreille – in warm places outside area;

Lasius flavus Fab. – exposed woodland only;

L. fuliginosus Latr. – garden hedge along woodland ride;

L. mixtus Nyl. – rare, once only in cleared woodland;

L. niger L. – neighbourhood of houses;

L. platythorax Seifert – abundant everywhere in 1997;

Formica aquilonia Yarrow – relatively hairless form abundant throughout woodland;

F. exsecta Nyl. – scarce in area but abundant near coast;

F. forsslundi Lohm. – restricted to wet bog, now scarce;

F. fusca L. – in open woodland and banks;

F. lemani Bond. – occasional in bogs;

F. lugubris Zetterstedt – local group nets in woodland;

F.pratensis Retz. – roadside verges;

F. rufibarbis Fab, – on warm bank outside area;

F. rufa L. – single nests fringing bog or sheltered woodland;

F. sanguinea Latr. – in open woodland and bogland stumps;

F. transkaucasica Nasonov (*nec F.candida* Smith) – once abundant in all bogs but populations much reduced by 1997;

F. truncorum Fab. – single nests in warm banks;

F. uralensis Ruzsky – not found after 1993.

Reference

Seifert B., 1991. *Lasius platythorax* n.sp., a widespread sibling species of *Lasius niger*. *Entomologia Generalis* **16**: 69-81.

NEW RECORDS OF PHORIDAE (DIPTERA) REARED FROM FUNGI

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ONE OF US (REE) has reared further scuttle flies from the sporophores of named fungi. These have been identified by RHLD. Several of our new records represent novel host records for the flies and some are the first records of named Phoridae from the fungus species in question. While the previous records are largely covered by two recent reviews of fungus breeding Phoridae (Disney, 1994, Yakovlev, 1994), both of these preceded the latest edition of the invaluable Dictionary of Fungi (Hawksworth *et al*, 1995) and the identification guide by Courtecuisse & Duhem (1995). Both these works alter the classification and names of several common fungi. Our new records are presented below.

Megaselia berndseni (Schmitz)

5 ♂♂ and 13 ♀♀ were reared from *Agrocybe molesta* (Lasch) Singer (= *dura* (Bolt. ex Fr.) Sing) (Bolbitaceae) collected 31 July 1994 at Cockthorpe Common, Norfolk (grid ref. 53/9842). This is the first record of a named phorid reared from this fungus species.

Megaselia flava (Fallén)

3 ♂♂ and 1 ♀ were reared from *Peziza varia* (Hedw.) Fr. (Pezizaceae) collected 26 November 1995 at Holt Country Park, Norfolk (grid ref. 63/0832). This confirms the only previous record of a named phorid reared from this fungus.

Megaselia flavicans Schmitz

3 ♂♂ and 6 ♀♀ were reared from *Russula delica* Fr. (Russulaceae) collected 23 September 1994 at Lyng Bridge, Norfolk (grid ref. 63/0717). 1 ♂ and 1 ♀ were reared from *R. ochroleuca* (Pers. ex Secr.) Fr. collected 23 August 1992 at Bridgham picnic site, Norfolk (grid ref. 52/9683). The former confirms the only previous record of a named phorid reared from this fungus, and the latter represents a new host record. Three other phorid species have previously been reared from *R. ochroleuca*.

Megaselia frameata Schmitz

4 ♂♂ and 4 ♀♀ were reared from *Laetiporus sulphureus* (Bull. ex Fr.) Murr. (Polyporaceae) collected 10 August 1994 at Felthorpe Woods, Norfolk (grid ref. 63/1417). The only previous record of a named phorid reared from this fungus is for the Nearctic *M. longipennis* (Malloch) (Ackerman & Shenefeldt, 1973).

Megaselia hirtiventris (Wood)

2 ♂♂ and 8 ♀♀ were reared from *Agaricus campestris* L. ex Fr. (Agaricaceae) collected 29 August 1994 at Lyng Bridge, Norfolk (grid ref. 63/0717). This confirms previous records. 1 ♂ and 3 ♀♀ were reared from *Psathyrella candolleana* (Fr.) Maire (Coprinaceae) collected 6 July 1994 at Ashwellthorpe Woods, Norfolk (grid ref. 62/1397). This is a new host record for this fly species.

Megaselia latior Schmitz

1 ♂ and 2 ♀♀ were reared from *Psathyrella candolleana* (Fr.) Maire (Coprinaceae) collected 19 August 1994 at Bradfield Woods, Suffolk (grid ref. 52/9358). This is a new host record for this fly species.

Megaselia lutea (Meigen)

18 ♂♂ and 2 ♀♀ were reared from *Helvella sulcata* Afz: Fr. (Helvellaceae) collected 28 July 1997 at Buxton Heath, Norfolk (grid. ref 63/1721). This is the first record of a named phorid reared from this fungus species. 30 ♂♂ and 54 ♀♀ were reared from *Russula cyanoxantha* (Schaeff. ex Secr.) Fr. (Russulaceae) collected March 1994 at Honingham Fen, Norfolk (grid ref. 63/0911), thus confirming previous records from this host. 12 ♂♂ and 2 ♀♀ were reared from *R. heterophylla* (Fr.) Fr. collected 13 September 1994 at Oulton, Norfolk (grid ref. 63/1429). This confirms this host, previously recorded from mainland Europe. 22 ♂♂ and 16 ♀♀ were reared from *R. ochroleuca* (Pers. ex Secr.) Fr. collected 15 May 1994 at Hockering Wood, Norfolk (grid ref. 63/0715). 2 ♂♂ and 1 ♀ were reared from *R. pectinatoides* Peck collected 28 July 1997 at Buxton Heath, Norfolk (grid ref. 63/1721). The rearings from these last two species of *Russula* confirm previous records. 3 ♀ were reared from *Xerocomus rubellus* (Krombh.) Quél. (= *Boletus versicolor*) (Xerocomaceae) collected 18 November 1995 at Marriots Way, Norfolk (grid ref. 63/1417). This is a new host record for this species. Three other phorid species have been reared from this fungus.

Megaselia nigra (Meigen)

3 ♀♀ were reared from *Agaricus campestris* L. ex Fr. (Agaricaceae) collected 29 August 1994 at Welborne, Norfolk (grid ref. 63/0609), thus confirming many previous records. 2 ♂♂ and 21 ♀♀ were reared from *Agrocybe praecox* (Pers. ex Fr.) Fayoud (Bolbitaceae) collected 20 June 1997 at Welborne, Norfolk (grid ref. 63/0609). This is a new host record for this fly species. 2 ♀♀ were reared from *Macrolepiota* (= *Lepiota*) *rhacodes* (Vitt.) Quél. (Lepiotaceae) collected 26 December 1995 at East Tuddenham, Norfolk (grid ref. 63/0912), thus confirming previous records. 4 ♂♂ and 1 ♀ were reared from *Melanoleuca melaleuca* (Pers. Fr.) Murrill (= *M. vulgaris*) (Tricholomataceae) collected 29 September 1989 at Felthorpe Wood, Norfolk (grid ref. 63/1416). This is the first record of a named phorid reared from this fungus. 1 ♀ was reared from *Morchella esculenta* Pers. ex St. Amans (Morchellaceae) collected 9 April 1997 at Ashwellthorpe Woods, Norfolk (grid ref. 62/1397). This is a new host record for this fly. 52 ♂♂ and 67 ♀♀ were reared from *Psathyrella candolleana* (Fr.) Maire (Coprinaceae) collected June 1997 at Beeston Common, Norfolk (grd ref. 63/1642). This is a new host record for this fly.

Megaselia scutellaris (Wood)

2 ♂♂ and 3 ♀♀ were reared from *Russula pectinatoides* Peck (Russulaceae) collected 28 July 1997 at East Tuddenham, Norfolk (grid ref. 63/0912). This is a

new host record for this fly. 5 ♂♂ and 8 ♀♀ were reared from *Tricholoma terreum* (Schaeff. ex Fr.) Kummer (Tricholomataceae) collected 12 November 1989 at Burnham Overy, Norfolk (grid ref. 63/8844). This confirms previous records from mainland Europe.

The specimens from the *Russula* were somewhat smaller than average for this species and the microtrichia on the male hypandrium more extensive laterally and on the posterior process of the left side. In view of this RHLD reconsidered his previously proposed synonymy of *M. scutellariformis* (Schmitz) with this species (Disney, 1985). To this end a male cotype of *M. scutellaris* has been remounted on a slide and designated the lectotype. Its label reads "Herefordshire, Botany Bay, 16.9.05, J.H. Wood". Likewise a male syntype of *M. scutellariformis*, labelled "Valkenburg, 7.VI.24, H. Schmitz", has been remounted on a slide in order to see the fine details of its hypopygium. Although Schmitz (1926) stated that the hypopygium of this species was "ganz wei bei *scutellaris*", in fact the microtrichia differ from the lectotype of the latter species. Thus they cover the entire vental face of the left process and much of the ascending left side of the hypandrium. In Wood's specimen, however, the microtrichia are largely restricted to the ventral face and the inner half of the left process. Sorting all available specimens into these segregates then allowed examination of the other features highlighted by Schmitz for any evidence of correlations. Thus he considered the costal index and costal cilia to be shorter in his species than in *M. scutellaris*. The wing details of the latter's male lectotype are as follows. Costal index 0.50, costal ratios 3.44 : 1.65 : 1, costal cilia 0.17-0.18 mm long, wing length 2.3 mm. For all the males examined the ranges are as follows. Costal index 0.40-0.51, costal ratios 2.86-4.47 : 1.36-2.24 : 1, costal cilia 0.11-0.18 mm, wing length 1.7-2.6 mm. However, there is no correlation between the distribution patterns of microtrichia on the hypandrium and a shorter costal index and costal cilia, or any other of these measures. The only evident partial correlations are between the wing length and the other wing features. These, however, can be largely attributed to allometric effects. The principal perception to emerge is that the species *M. scutellaris* is somewhat more variable in size than usual (as evidenced by the range of variation in the wing length) and consequently exhibits variation in many other small details. Furthermore the distribution of microtrichia on the hypandrium is somewhat more variable than usual and the latter's left process is somewhat variable in size. The conclusion is that there is no evidence justifying reinstatement of Schmitz's species.

Acknowledgement

We are grateful to Nigel Wyatt (Natural History Museum, London) and Dr Hans Ulrich (Museum Koenig, Bonn) for permission to remount critical specimens in their cares on slides. RHLD is currently funded by the Isaac Newton Trust (Trinity College, Cambridge).

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Argyresthia trifasciata Stdgr. (Lep.: Yponomeutidae) new to Norfolk

On 28 May 1999, amid an otherwise unremarkable catch, I took a single specimen of *Argyresthia trifasciata* in the moth trap run in my garden on the western outskirts of Norwich (grid reference TG 215090). This is a new record for Norfolk.

The species was first taken in Britain in 1982 at Hampstead by R. Softly but a long gap ensued before further records in 1997 at sites in North Hampshire and Stockport, Cheshire. In 1998 it occurred at the same Hampshire site, as well as at Raynes Park, Surrey (four specimens) and at a different site in Cheshire. Records this year, additional to my own, are South Kensington (Middlesex) and Aberdeen (M. Honey, *pers. comm.*).

There is no shortage of possible foodplants (*Juniperus, Cupressus*) in the vicinity, both in neighbouring gardens and in a nearby large cemetery.

I am grateful to Dave Hipperson for confirming the identification and to Martin Honey for providing me with details of previous records.– STUART PASTON, 25 Connaught Road, Norwich, NR2 3BP.

Further records of *Argyresthia trifasciata* Stdgr. (Lep.: Yponomeutidae) in Cheshire (VC58) during 1999

On 19 June 1997 Barry Shaw recorded the second British specimen of *Argyresthia trifasciata* at Heald Green, Greater Manchester (VC58, Cheshire) and reported his find in *Atropos* **6**:74. Further specimens from the south-east of England were exhibited by Mark Parsons at the 1998 BENHS exhibition in London and are thought to be third, fourth and fifth British records.

So far this year I have 11 records for this species which have been taken in my m.v. and RIS traps located in my Prestbury garden. The first two specimens, which are new to this site, were found in both traps on the night of 18 May 1999. Further specimens have been found most nights since. Surrounding the garden is a well established hedge of Leylandii, which I assume to be the food-plant for the larvae, as the trees show discoloured and dried out shoots. Gently tapping the hedge at dusk has not disturbed the moth so far.

Prestbury is about six miles as the Crow flies from Heald Green and lies on the eastern edge of VC58 some five miles distant from the Derbyshire border.

Could this be the year when *Argyresthia trifasciata* is recorded in greater numbers over a much wider area of the country or is there an explanation for its currently unusual distribution?– D.J. POYNTON, 1A Castlegate, Prestbury, Cheshire SK10 4AZ.

An overlooked paper on Tiree Lepidoptera

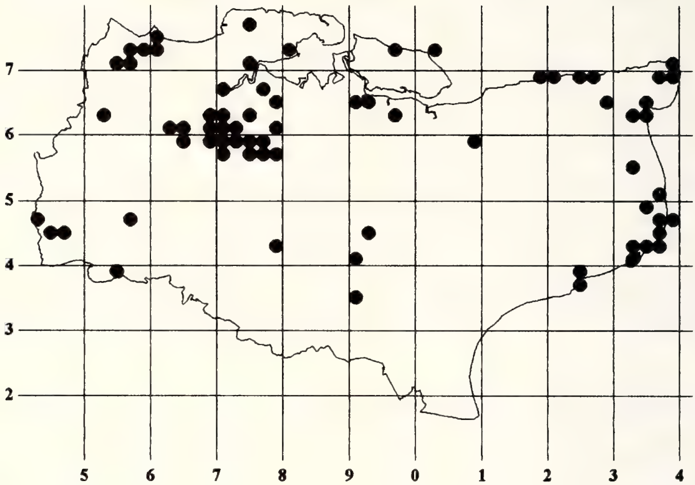
Following the publication of my article on Lepidoptera on Tiree (*Ent. Rec.* **110**: 247-9), Dr Mark Young kindly sent me a copy of a paper, that he had written with M.W. Harper, entitled *Periclepsis cinctana* (D.&S.) and other Lepidoptera on Tiree in 1984 (*Entomologist's Gaz.* **37**:199-205). It was a pity I was not aware of this paper, and that it was overlooked by R.L.H. Dennis and T.G. Shreeve for their 1996 book *Butterflies on British and Irish offshore Islands,* as it mentioned the then additional 10km square of NM 04 for *Pieris brassicae, Polyommatus icarus* (Rott.), *Aglais urticae* (Linn.) and *Maniola jurtina.* This important contribution to the Lepidoptera of the Inner Hebrides lists the 75 micro and macro species they encountered in Tiree between 27 June and 4 July 1984. It should also be noted that this was the occasion of their remarkable discovery of *Periclepsis cinctana* and not early- to mid-July 1985 as I was wrongly informed.– DEREK C. HULME, Ord House Drive, Muir of Ord, Ross-shire IV6 7UQ.

The status of *Oedemera nobilis* (Scopoli) and *O.lurida* (Marsham) (Col.: Oedemeridae) in Kent

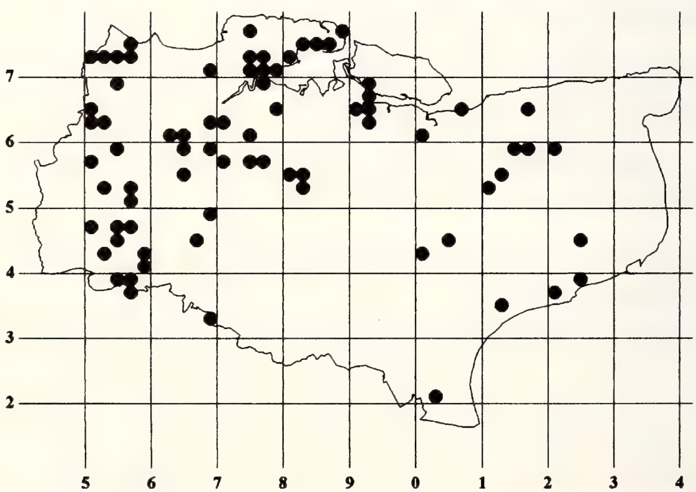
I was interested to read the notes by Mr A.A. Allen (*Ent. Rec.* **110**:293) and by Mr L. Clemons (*antea*: 141-143) on the apparent local distribution of these two striking beetles. I must agree with Mr Clemons that the apparent rarity is in part due to the lack of recording, but I am at a loss to understand his concluding remark about a lack of any centralised recording effort. I personally have been collating records of Coleoptera found in Kent since the early 1950s and indeed Mr Clemons has supplied me with records in the past, so surely his remark must have been a slip of the pen.

The accompanying maps show the recorded distribution of these two species in the county from 1971 onwards although the majority of the records are from the 1980s and 1990s. Bearing in mind the limited number of recorders, *Oedemera lurida* appears to be generally distributed throughout the county whilst *O. nobilis,* although occasionally occurring elsewhere, is more restricted to the chalk and coastal areas.

Oedemera nobilis



Oedemera lurida



Apart from my own observations thanks are due to the following who have also supplied records: - K. Chuter, L. Clemons, I. Ferguson, S. Grove, N.F. Heal, P.J. Hodge, A.V. Measday, N. Onslow and S.A. Williams. The maps were produced using the DMAP software written by Dr Alan Morton.– ERIC G. PHILP, 6 Vicarage Close, Aylesford, Kent ME20 7BB.

Postponed emergence: A possible survival tactic in the Orange-tip butterfly *Anthocharis cardamines* (Lep. : Pieridae)

During the spring of 1996, I spent a pleasant afternoon watching several female Orange-tip butterflies ovipositing on a bank of hedge mustard *Sisymbrium officinale* growing in a hedgerow near my home. Not having bred this species before, and having several plants of the same species growing in my garden, I decided to return at a later date to collect some of the larvae.

At the beginning of June 1996, I took some 35 larvae from this hedgerow and released them onto the plants in my garden. These were observed on a daily basis until they reached their final instar. By then, some 31 larvae remained. These were sleeved so as not to wander away, and left to pupate on the foodplant. All 31 larvae successfully pupated. In the autumn of 1996 the pupae were brought indoors and placed in the windowsill of a north-facing bedroom which remained unheated during the winter.

In the spring of 1997, 20 specimens emerged which were released into the garden. The remaining 11 pupae when tested with the tip of my tongue, all felt cold, an indication that they were still alive. These were left in the same location. In the spring of 1998 a further eight specimens emerged and were released. The last three pupae still felt cold when tested. Two of these emerged in April 1999. The remaining pupa is still alive.

The springs of 1997 and 1998 were both short, and frosts occured in late May of both years locally. The observed flight period of this butterfly was only two weeks each year rather than the normal four to five weeks. In neither year were any Orange-tip butterflies seen on the wing after the May frosts.

According to Emmet & Heath (1989. *The Moths and Butterflies of Great Britain & Ireland* **7**(1):116), pupae sometimes overwinter twice, the stage normally lasting 10-11 months. Is it possible that the change in weather conditions deferred the insects, emergence from the pupa until the conditions were more suitable? From the evidence of these bred pupae, it would appear that this is a definite possiblity. If this can happen in captivity, then surely it can happen in the wild!

This method of postponing emergence is well known in the Small Eggar *Eriogaster lanestris,* which has been reported to survive up to eight years in the pupal state, but I have been unable to find any reference in the entomological literature in relation to any British butterfly species being able to overwinter several years as a pupa.

If this postponement of emergence is possible in the Orange-tip, then it may occur in other butterfly species that overwinter in the pupal state. I would be interested to hear from anyone who has noted this phenomenon in any other British butterfly species.– HARRY T. EALES, 11 Ennerdale Terrace, Low Westwood, Derwentside, Co. Durham NE17 7PN.

An extreme melanic form of *Ectropis bistortata* Goeze (L.:Geometridae) in Kent

On 28 March 1998, a fresh male *Ectropis bistortata,* of a form I had not previously encountered elsewhere, came to my garden m.v. light at Dartford, West Kent. The moth was black, including the head, thorax and abdomen, the wings adorned only with a well defined whitish submarginal line and a narrower, less prominent, wavy marginal line. It would seem to be ab. *extrema* Rebel and correspond to ab. *nigra* Bankes of *E. consonaria.* The aptly named ab. *extrema* would appear to be rare; it is not noted by Kettlewell (*The Evolution of Melanism,* 1973) as one of the melanic forms of *E. bistortata* found in Britain.

In north-west Kent, despite the habit of resting on tree trunks, this species has shown minimal tendency towards melanism. Plant (*Larger Moths of the London Area,* 1993) makes no mention of melanism. Chalmers-Hunt (*Butterflies and Moths of Kent,* sup. in *Ent. Rec.* **89**) notes two less extreme melanics from Aylesford 16.vii.1956 and 11.viii.1957, referrable to ab. *defessaria* Freyer, to which I can add two for Dartford, 13 and 17.viii.1988.– B.K. West, 36 Briar Road, Dartford, Kent DA5 2HN.

Unseasonal occurrence of *Pieris brassicae* L. (Lep.: Pieridae)

Can any reader of the *Record* explain this? On 6 February 1999 I found several larvae of *P. brassicae* on a purple sprouting broccoli plant in my garden in Willaston, Wirral. They were about half grown (25mm), so presumably hatched from the ova in January. When were the ova laid? Although winter in the Wirral peninsula is usually mild (compared with, say, East Anglia) these larvae must have survived four or five frosty nights. The plant in question is one in a row of five, and all the other plants were free of larvae.– R.G. Ainley, "Burford", Briardale Road, Willaston, Wirral, Cheshire L64 1TB.

Hazards of butterfly collecting – The birth of a lepidopterist – Delhi, 1951

I find the question: "How did you become interested in butterflies?" to be second only to "How long does a butterfly live?". A quick count shows that I have been asked both questions in at least fifty countries. I have just moved – or relocated as it is known in development jargon – to the Philippines and I have already been asked both questions a least 40 times. Some people think that Manila is an odd place to write the definitive book on West African butterflies, but my wife, Nancy, was appointed to a very interesting United Nations post here, and a dutiful husband follows. About 100,000 African butterflies, my library, my microscope and all my genitalia slides, as well as all my field notes and slides are on the good (or so I fervently hope) ship m/s Maas, docking in Manila a week from now.

The answer to the second question is fairly involved, most people believing it to be only a single day, and blissfully forgetting that a butterfly is also an egg, larva and pupa. But it is a good entry-point for popularizing butterflies. The answer to the first question is easier. Three butterflies are directly responsible.

The first was in 1950, when I was six years old, and living in Greece, where my father was working for the United Nations on emergency relief. A six-month stint in the Dachau and Neuengamme Concentration Camps had overridden his lack of academic qualifications. He had been a competent amateur botanist in Denmark – though all these Mediterranean plants stumped him, he had a general interest in natural history which he imparted to me (I was sent back to Denmark to start my academic career shortly after the episode yet to be told, holding a jam jar with a live sea-horse, during a two day journey on an RAF DC-3. Sad to say, it did not like the Danish winter, and soon expired. But twenty classmates saw it; most have never seen a live sea-horse since).

Just before leaving for school in Denmark, a huge butterfly entered our bathroom. My father caught it, and pickled in it alcohol. "This is the only two-tailed swallowtail I have ever heard of", he declared. The sight of this monster butterfly in its jar etched itself in my memory. But it was almost 12 years later when I pinned it down. It was obviously the Two-Tailed Pasha *Charaxes jasius* L. Funny thing, though .... it does not seem to be in the Athens area today. Well, it was there in 1951!

A year later we moved to India, to lodge at the Swiss Hotel in Old Delhi, which had become a kind of a UN compound (several Director-Generals to be of UN agencies earned their spurs while living there). The hotel lawn was full of the lovely little Blue Pansy *Junonia orithyia* L. and I wanted to catch it. An old tennis racquet was fixed up as a butterfly net – it was a Slazenger (I distinctly remember this) with white plastic covering the shaft, which I used for years. I got my *Junonia*, as well as the wonderful Peacock Pansy *Junonia almana*; hotel lawns are now prime habitat for both.

But I set my sights higher. On the other side of the road was a rambling park, the Qudtsia Gardens (now prettied up and with lots of people). There were two problems, though: On my mother's orders, I could only go with an ayah (child-minder), and I could only go wearing a pith-helmet (topee – the kind of contraption that Tim Piggot-Smith wore in *Jewel in the Crown*, that deeply masochistic TV series on the last days of British Empire in India). I had my first rebellion against authority – make that, perhaps, my first fully conscious rebellion. It was only half successful, but victory was still sweet. The ayah stayed, the hat went (I have never worn a hat since, except for two years in the Danish Army). There were many butterflies in the park, but the first two days one of the best eluded me. It was a large white butterfly, winding its way slowly through the crowns of the tallest trees. On the third visit (I had hoped the ayah was getting bored, but no such luck – the supervision order was still in place) I finally got it on *Lantana* flowers. It was the Common Jezebel *Delias eucharis* L. – still one of the most beautiful butterflies I know. It is much larger than the Large Cabbage White *Pieris brassicae* L.; the upperside is unexceptionally white, but the underside is spectacular. The veins are

black, most of the underside is deep yellow, with huge sub-marginal spots of the most exquisite crimson.

So thank you Two-Tailed Pasha, Blue Pansy, and Common Jezebel for forcing me to become a collector and then a student of butterflies. A most pleasant fate!– TORBEN B. LARSEN, 5 Wilson Compound, 2811 Park Avenue, Pasay City, Metro-Manila, The Philippines.

SUBSCRIBER NOTICES

Aerial Insects

During July 1999, I carried out aerial sampling of migrating insects at 200 metres above ground over RAF Cardington, Bedfordshire, using a net suspended from a helium-filled balloon. Samples have been identified as far as family or superfamily, but the majority of species remain unidentified. If anyone would be able to help with the identification of species from the following taxa, and would like records from these groups, I would gladly donate samples.

Homoptera: Delphacidae, Cicadellidae, Psyllidae;

Diptera: Nematocera (several families), Empididae, Phoridae, Lonchopteridae, Sepsidae, Spaeroceridae, Asteiidae, Ephydridae,Drosophilidae, Agromyzidae, Anthomyiidae;

Hymenoptera: Ichneumonoidea, Cynipoidea, Chalcidoidea, Proctotrupoidea.

For more information please contact me.– JASON CHAPMAN, Department of Entomology & Nematology, IACR - Rothamsted, Harpenden, Hertfordshire, AL5 2JQ (telephone 01582 763133 x 2454, fax 01582 760981 or email jason.chapman@bbsrc.ac.uk).

Orange Upperwing *Jodia croceago* (D.&S.) survey – autumn 1999/spring 2000

The Orange Upperwing is one of the UK Government's Biodiversity Action Plan (BAP) priority species. Butterfly Conservation has been appointed the Lead Partner for this species. The initial aim of the Action Plan is to determine whether this moth is still present in Britain.

Currently, searches are undertaken in an uncoordinated fashion. There is no overall view of the sites that are being surveyed and those that are not. There is also no indication of the amount of recording effort being undertaken, or techniques being used, in an attempt to try and re-find this species.

The Orange Upperwing is thought to be an open woodland or woodland edge species, the larva feeding on pedunculate oak *Quercus robur* and sessile oak *Q. petraea*. The species is considered to be associated with small or coppice trees that retain their leaves over winter. It occurs as an adult from September to mid-May and has been found at ivy *Hedera helix* blossom in the autumn and at sallow *Salix* spp. catkins in spring. It comes to light. The last definite record was from Sussex in 1984,

although there is a more recent unconfirmed record from Hampshire. Other post-1980 reports are from Cornwall, Somerset, Surrey, Shropshire (unconfirmed) and Cardiganshire (unconfirmed), although records indicate a wider historic distribution in the southern half of England and in Wales (based on information from Waring, P., in prep. *Atlas of the Nationally Scarce and Threatened British Macro Moths*. Joint Nature Conservation Committee). Known records are presented in Figure 1.

If you go looking for the Orange Upperwing this autumn or next spring, or are recording in an area where this species could appear, we would like to hear from you. **Negative results are important**, as this would give an indication of the amount of effort being undertaken and the sites being searched. Do not restrict yourself to the known localities or even habitats, for example heathland with scrubby oaks may be important for this species and it is a habitat that is comparatively under-worked at these times of year. Do not restrict yourself to light-trapping – try natural attractants, e.g. ivy or sallow blossom, or use other attractants such as sugar or wine-ropes.

The data we would like to receive should be in the following format, giving all details where known:

1. Name of site
2. Six figure grid reference
3. Vice-county (and vice-county number)
4. Date of visit
5. Duration of visit (to the nearest hour)
6. Number of recorders
7. Techniques used (including no. and type of traps; sugar; ivy blossom; sallow catkins, broken down into number of hours spent on each, if possible)
8. Habitat (broad description only, e.g. deciduous or mixed woodland; heathland etc.)*
9. Weather conditions (max./min. temperature; overcast/clear; rain/dry; wind)

* If the species is found we would like as full details as possible of the habitat conditions and a description of any obvious site management.

Please remember to get access permission to any site you are visiting. As there is a possibility of confusion with other species take particular care over confirming the identification. If possible, take a photograph or retain the specimen. We would also like to hear from you if you have had experience of this species abroad. In particular, we would like to know about its habitat preferences.

The results (including the important negative results) should be sent to *Adrian Spalding* at *Tremayne Farm Cottage, Tremayne, Praze-an-Beeble, Camborne, Cornwall TR14 9PH* (telephone 01209 831517). If this survey proves successful and gives rise to interesting data, further species (particularly BAP species) may be targeted for similar surveys.

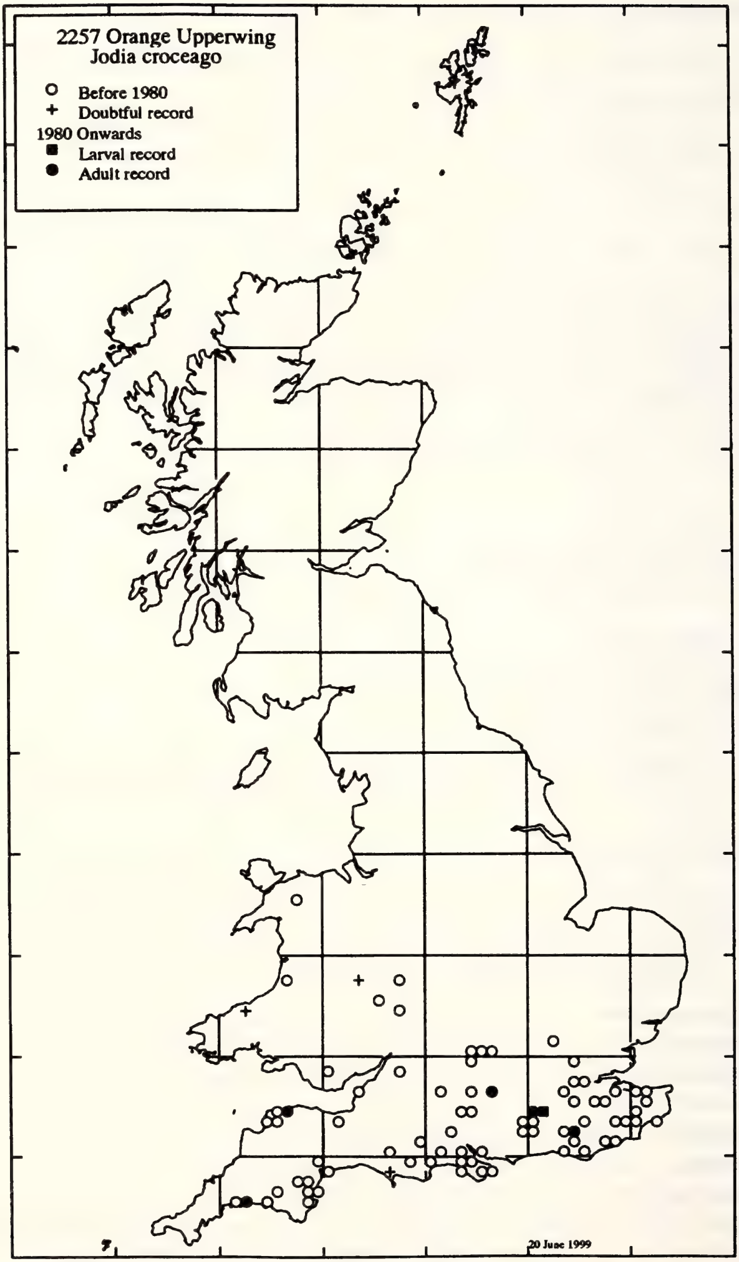


Figure 1. Distribution of *Jodia croceago* (D.&S.) in Britain.

We would like to thank both JNCC and Paul Waring for permission to use information from the forthcoming *Atlas* and to publish the provisional distribution map.

Further information about this and other BAP priority species of moth, and how you can help, can be obtained by contacting either of us.– MARK PARSONS & DAVID GREEN, Butterfly Conservation, UK Conservation Office, PO Box 444, Wareham, Dorset BH20 5YA.

BOOK REVIEW

Die Larven der Europäischen Noctuidae. Revision der Systematik der Noctuidae by **Herbert Beck**. 1999. Volume I:864 pages and Volume II:448 pages, published as Band 5/1 of the *Herbipoliana* series by Dr Ulf Eitschberger, Marktleuten, Germany. A4, hardbound with dust-wrappers. German text with some sections also in English. ISBN 3 923807 04 X. Vols.I and II DM560.

These are the first two volumes of the long-awaited and projected series of four; in total they comprise a colossal and original work conceived on the broadest scale, yet founded on the most meticulous and quantified detail, the culmination of research that has evolved during the course of the last half-century. Beck's intensive studies into the morphology and ornamentation of noctuid larvae brought about objective re-appraisal of the family systematics, not as an independent discipline but complementary to the long history of work based upon adult structure, and in particular of their genitalia; Beck's *Systematische Liste der Noctuidae Europas* appeared in its most recent form in 1996 in *Neue Entomologische Nachrichten* and the first volume presents the argument and reasoning for that list, backed by a wealth of morphological line drawings (volume II) and later by 1600 coloured photographs of 850 taxa (volume III) and larval descriptions (volume IV).

Volume I Part A includes an Introduction and Acknowledgements, an important Abstract, a personal history of the studies, rearing from the egg (most species!) and critically a discussion on the merits of systematics based upon adult or larva, with fully referenced history. A technical section details the terms used in the description of morphology and ornamentation using *Autographa gamma* (L.) as a five and a half page model of the ultimate larval descriptive text: this is, however, only illustrative, for descriptions employed in this work are much shortened. Any worker who is not familiar with Beck's terminology will have need to refer to the list of abbreviated terms (Abkürzungsverzeichnis und Begriffe) and its accompanying list of definitions, these lists being given in both German and English and presented in combined alphabetical sequence.

Part B of Volume I begins with a history of noctuid classification that embraces Notodontidae, Lymantriidae, Arctiidae, Ctenuchidae and Nolidae, dwelling at some length on the latter and leading on to distinguishing characters of Noctuoidea with discussion on problem groups. The first key, to last instar larvae, leads the reader through to families and this is well supported by clear line drawings of salient features; this is followed by a key to Noctuidae subfamilies, tribes and some genera, again with abundant, clear and well-presented figures that illustrate a range of characters from mandibular teeth, spinneret and head structure to classified bristles, chaetogramms (patterns of warts or bristles of the whole body), ingenious systems of measurement, whereby characters are referable to location on the body, body ornamentation, stripes and zones and patterns and head markings (some 30 variants of network freckling). These keys are separately given in English and German.

Any fundamental alternative to existing systems of classification will attract criticism and especially one that sees the need to introduce greater use of tribes and subgenera. Beck's novel adaptation of existing names to create new ones has already earned adverse comment and some of these names may indeed be contested. The point must always be borne in mind, however, that such changes draw attention to new concepts and the obvious location to present them is in such an inclusive and inter-related revision. Two subfamilies may be quoted to indicate these extensive changes; genera formerly allocated to the previously ill-assorted subfamilies Amphipyrinae and Cuculliinae have been re-distributed to subfamilies Cuculliinae and Noctuinae. In Beck's treatment (that follows Lafontaine and Poole (1991) as well as Beck's own earlier work) the Noctuinae embraces part of Hampson's Noctuinae, Hadeninae and Ipimorphinae but includes also numerous genera from former Cuculliinae (1972) such as *Lithophane*, *Xylena*, *Xanthia*, *Agrochola*, *Conistra*, *Aporophyla* and their allies, and the greater part of the existing Amphipyrinae (1998). By freely employing use of tribes, these unfamiliar bed-fellows of the Noctuinae are segregated into Ipimorphini, Apameini, Hadenini, Prodeniini, Noctuini and Agrotini, each with commendable uniformity. So far as genera resident in Great Britain are concerned, the Cuculliinae of Beck are limited to a handful (14) with most species in *Cucullia*. Such radical re-organisation will of course savage as scarcely recognisable most existing lists from Kloet & Hincks (1972) to the recent Bradley (1998); so no wonder that popular identification guides prudently retain the earlier-conceived systems and the nomenclature that goes with them!

The rest of volume I gives systematic treatment by subfamilies of 815 species (in German only). It concludes with an updated systematic list, an extensive list of references split into minor and major, a well-organised and user-friendly index that is duplicated for both volumes with no entries for taxa higher than species in volume II (not relevant).

Volume II consists entirely of well over a thousand black and white line drawings of larval morphological characters that support the systematics, keys and descriptions of taxa in volume I. They are sharp and well-presented, and accompanied by legends at the bottom of the page. Many are by M. Ahola, others by Beck and colleagues; all are of fine clarity. The Index is the same as for volume I.

The work is bound in red linen, with gold lettering and there are blue dust-wrappers; text is printed on high quality paper using Times New Roman font. Sections are clearly laid out and identified by a decimal system. The proof reading, a laborious and exacting task, appears to be exemplary. The whole is a triumph of printing technology and a superb achievement by all who shared in its production. Both volumes are well-bound and lie open with ease at any part. They are, however, by their nature essentially books for desk use, volume I weighs in at 9lbs (4.8 kilos) volume II at 5_ lbs (2.4 kilos), compared with say, Seitz's *Palaearctic Noctuidae* at 7_ lbs (3.3 kilos). A press notice gives examples of coloured figures that will appear in volume III — the photography and reproduction of these are of the highest order and give promise of yet further superlative craftmanship.

These volumes can truly be recognised as monumental. Dr Beck deserves our congratulations and gratitude for his unswerving life-time's work in conceiving and seeing to publication this vitally important and stimulating achievement that will mark a new standard from which to go forward with the European Noctuidae.

G M Haggett

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THE ENTOMOLOGIST'S RECORD

AND JOURNAL OF VARIATION

(Founded by J.W. TUTT on 15th April 1890)

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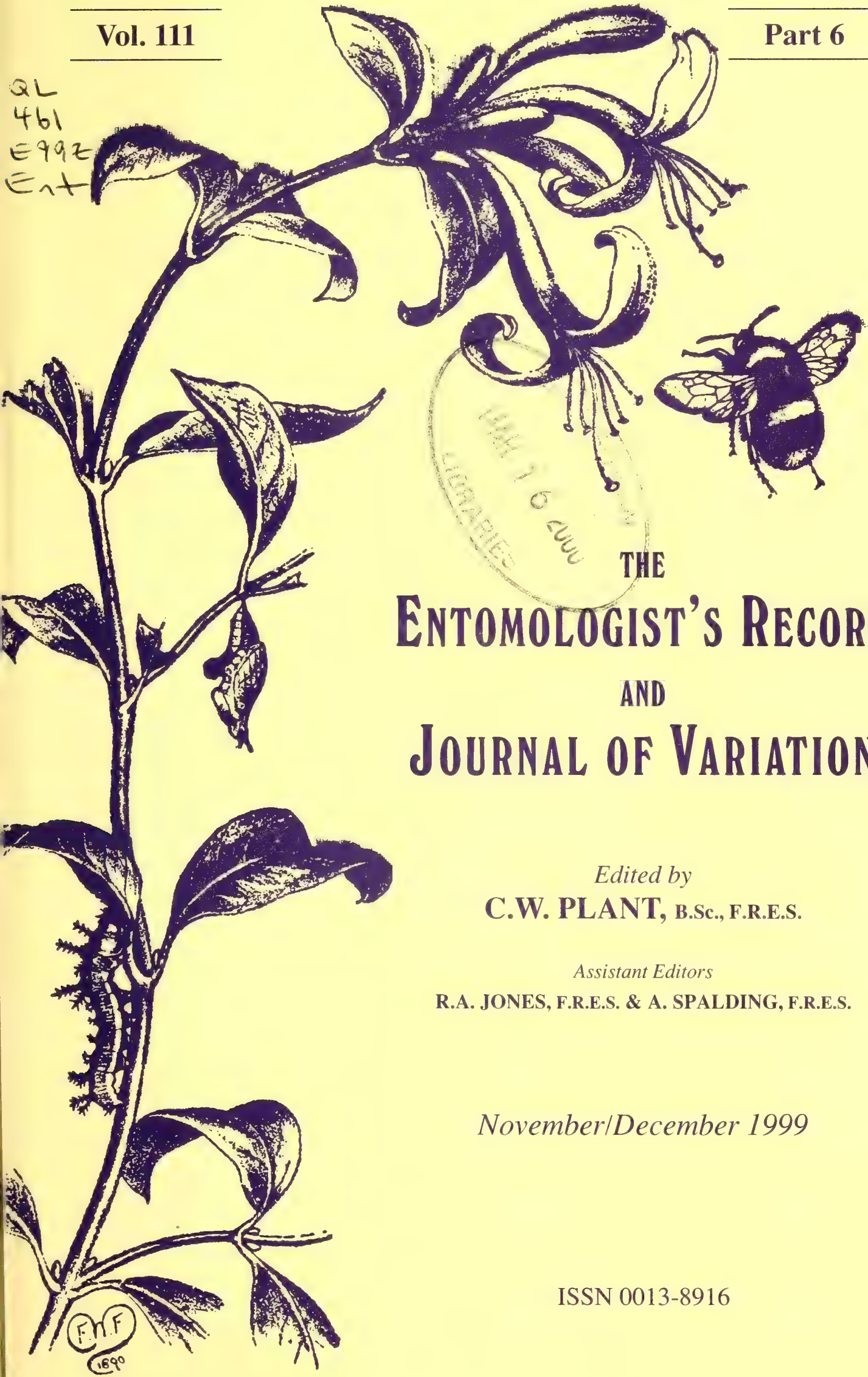

THE ENTOMOLOGIST'S RECORD AND JOURNAL OF VARIATION

Edited by

C.W. PLANT, B.Sc., F.R.E.S.

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This journal publishes original papers and notes from both amateurs and professionals. It is not necessary for contributors to be subscribers. The emphasis of the journal is on British and European Lepidoptera but papers on other aspects of British and European entomology are considered, particularly concerning species in Europe which may eventually reach Britain.

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All authors should refer to this issue as a guide, particularly with regard to the format of dates, lists of references and lists of species. Names of British Lepidoptera should follow Bradley, J.D. (1998. *A checklist of Lepidoptera recorded from the British Isles*) and authors of species names should be given at the first mention. A full list of instructions may be obtained by sending a stamped addressed envelope marked "Ent. Rec. Guidelines" to the Editor.

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MICROLEPIDOPTERA REVIEW OF 1998

J.R. LANGMAID[1] AND M.R. YOUNG[2]

[1] *Wilverley, 1Dorrita Close, Southsea, Hampshire PO4 0NY*

[2] *Culterty Field Station, Department of Zoology, University of Aberdeen, Newburgh, Aberdeenshire AB41 6AA.*

IF 1997 WAS considered a poor year for Microlepidoptera, 1998 was worse, with leaf-mining species being particularly scarce. This may partly be explained by the winter of 1997-98 having been another very mild one over the whole country, with record-breaking temperatures in Scotland in January and February and only the occasional brief cold spell. March started cold and frosty, but this was soon followed by unsettled and wet weather until the middle of the month, after which it was warm and dry. April was cold, wet and miserable, but May was the warmest for several years and quite the best month of the year. It was the fourth wettest June this century, and July was not a lot better, but became hotter with thundery conditions towards the end of the month. August started thundery, but was, on the whole rather a drier month with a brief hot spell just before the middle. September was warm and wet and October was dominated by gales and more rain which continued into November. Later that month colder conditions prevailed, but December became very mild after a cold beginning.

However, all was not doom and gloom, with two pyralid species added to the British list. Several specimens of *Vitula biviella* (Zeller) were taken in Kent by K. Redshaw in July, and a single specimen of *Herpetogramma licarsisalis* (Walker) by S.A. Knill-Jones on the Isle of Wight in October.

Olethreutes arbutella (Linnaeus), new to England, was found in Essex but was almost certainly a vagrant from continental Europe, there having been an easterly airstream at the time. New to Scotland were *Psychoides filicivora* (Meyrick) and *Ochsenheimeria taurella* ([Denis & Schiffermüller]); and *Ypsolopha mucronella* (Scopoli) is new to the Irish list.

Knowledge of the life histories of several species has been discovered or expanded by R.J. Heckford – these are *Biselachista serricornis* (Stainton), *Denisia subaquilea* (Stainton), *Borkhausenia fuscescens* (Haworth), *Monochroa hornigi* (Staudinger), *Gelechia senticetella* (Staudinger) and *Bactra lancealana* (Hübner). *Caryocolum blandelloides* Karsholt was bred in some numbers by entomologists attending the annual weekend meeting of the Scottish entomologists, resulting in a publication on both its original discovery by R.J.B. Hoare and its life history.

A further colony of the scarce and local *Ancylis tineana* (Hübner) was found in Scotland, and species new to the British list in the last quarter of a century, such as *Phyllonorycter platani* (Staudinger), *P. leucographella* (Zeller), *Argyresthia trifasciata* Staudinger, *A. cupressella* Walsingham, *Bactra lacteana* (Caradja) and *Eucosma metzneriana* (Treitschke) have all been found in new areas.

Thanks are due to those who have contributed records, and, as usual, they are identified by their initials: D.J.L. Agassiz, H.E. Beaumont, K.P. Bland, K.G.M. Bond, M.R. Britton, M.F.V. Corley, A.M. Davis, B. Dickerson, A.M. Emmet, B. Goodey, D.G. Green, M.W. Harper, R.J. Heckford, R.I. Heppenstall, S.H. Hind,

J.R. Langmaid, D.V. Manning, D. O'Keeffe, M.S. Parsons, R.M. Palmer, S.M. Palmer, J.T. Radford, J. Robbins, A.N.B. Simpson, E.G. Smith, M.H. Smith, I.F. Smith, P.H. Sterling, I.R. Thirlwell and M.R. Young. SEM denotes the Scottish Entomologists' Meeting held over a weekend in June, the lepidopterists present being DJLA, KPB, MWH, JRL, RMP, ANBS and MRY.

Titles of journals are abbreviated as follows; *Ent. Gaz.* for the *Entomologist's Gazette*; *Ent. Rec.* for the *Entomologist's Record and Journal of Variation*; and *BJENH* for the *British Journal of Entomology and Natural History.*

The following systematic list is somewhat shorter than usual, partly due to the fact that it was generally a poor year, and partly because records of migrant species have only been included if they are new vice-county records. New vice-county records are, as in previous Reviews, in **bold** and underlined. The maps held by A.M. Emmet have been used to recognise these, and we are grateful to him for providing this information and for the time and trouble he has taken in doing so. As in the 1997 Review the nomenclature and order of species is according to the *Checklist of Lepidoptera recorded from the British Isles* (1998) by J.D. Bradley.

We would request that records for the 1999 Review are sent to John Langmaid as soon as possible, and we are hoping to be able to publish it towards the end of 2000. It is of enormous help if records are submitted in the same format in which the Review is published, as this considerably eases the task of collation.

SYSTEMATIC LIST

NEPTICULIDAE

40 *Bohemannia pulverosella* (Staint.) — Blackpool (**60**) vacated mine on *Malus* sp. 23.vii.1998 — SMP

42 *Ectoedemia septembrella* (Staint.) — Gait Barrows NNR (**60**) mine on *Hypericum* sp. 14.ix.1998 — SMP; Pitcaple (**93**) mines on *Hypericum* sp. 6.ix.1998 — MRY

43 *E. weaveri* (Staint.) — Achilty (**106**) mines on *Vaccinium vitis-idaea* 24.iv.1998 — MRY

46 *Trifurcula immundella* (Zell.) — Ordiquhill (**94**) viii.1998 — R. Leverton *per* MRY

53 *Stigmella splendidissimella* (H. – S.) — Danes Moss (**58**) mines on *Rubus idaeus* 25.x.1998 — SHH

55 *S. aeneofasciella* (H. – S.) — Hirendean Castle (**83**) 18.vii.1998; Fealar Gorge (**89**) mines on *Fragaria vesca* 23.ix.1998, moth bred —KPB

58 *S. ulmariae* (Wocke) — Horn Wood (**32**) one vacated mine on *Filipendula ulmaria* 15.x.1998, det. DVM — G.E. Higgs *per* DVM

68 *S. salicis* (Staint.) — Newtonmore (96) mines on *Myrica gale* 8.ix.1998, moth bred — RJH

79 *S. perpygmaeella* (Doubl.) — Bin Forest (**93**) mines on *Crataegus* 19.ix.1997 — MRY; Montcoffer Wood (**94**) mines 28.ix.1997 — RMP & MRY

81 *S. hemargyrella* (Kollar) — Coed Bron Garth (**49**) mines on *Fagus* 7.vii.1998 — SHH

82 *S. paradoxa* (Frey) — Bryn Pydew (**49**) mines on *Crataegus* 7.vii.1998 — SHH

87 *S. svenssoni* (Johan.) — Shortheath Common (**12**) two tenanted mines on *Quercus robur* 20.viii.1998 — IRT & JRL

100 *S. oxyacanthella* (Staint.) — Montcoffer Wood (**94**) mines on *Crataegus* 28.ix.1997 — RMP & MRY

108 *S. crataegella* (Klim.) — Montcoffer Wood (**94**) mines on *Crataegus* 28.ix.1997 — RMP & MRY

INCURVARIIDAE

143a *Nematopogon magna* (Zell.) — Dulsie Wood (**96**) 18.v.1998, det. JRL — JTR

146 *Nemophora cupriacella* (Hübn.) — Sidlesham (13) 60-70, all females, some ovipositing, on flower-heads of *Dipsacus fullonum* 7.vii.1998 — IRT & JRL; Tiddesley Wood (37) one on leaf of *Dipsacus fullonum* 19.vii.1998 — K. McGee *per* ANBS

149 *Adela cuprella* ([D. & S.]) — Ashley Hill Forest (**22**) 29.iii.1998 — I. Sims, *Ent. Rec.* **110**: 287

150 *A. reaumurella* (Linn.) — Abercamlo Bog (**43**) 21.v.1998 — AMD

152 *A. rufimitrella* (Scop.) — Pant (**47**) 16.v.1998 — SHH

153 *A. fibulella* ([D. & S.]) — Embo (**107**) 27.vi.1998 – SEM

PSYCHIDAE

175 *Narycia monilifera* (Geoff.) — Muchalls (**91**) cases 4.vi.1998 — MRY; Spinningdale (**107**) cases 21.ix.1998 — P. Entwistle *per* MRY

179 *Dahlica lichenella* (Linn.) — Muchalls (**91**) cases 4.vi.1998 — MRY

183 *Bacotia sepium* (Speyer) — Sharnbrook (**30**) larval case 24.iv.1998 —DVM

TINEIDAE

200 *Psychoides filicivora* (Meyr.) — Conkwell Wood quarry (**7**) moths bred from *Phyllitis scolopendrium* v –vi.1998 — EGS & MHS; South Kensington (**21**) larvae in garden of BMNH 22.iv.1998 — M.R. Honey & MSP; Edinburgh (**83**) larvae on *Phyllitis scolopendrium* and *Asplenium trichomanes* 15.viii.1998, moths bred — KPB, **New to Scotland**

203 *Infurcitinea argentimaculella* (Staint.) — Spye Park (**7**) moths bred vi – vii.1998 — EGS & MHS

231 *Monopis imella* (Hübn.) — Rye Harbour (**14**) 2.viii.1998, det. MSP — P. Troake *per* MSP

233 *M. fenestratella* (Heyd.) — Ashstead Common (17) one 19.vi.1998 — MSP, *Ent. Gaz.* **50**: 116

245 *Tinea pallescentella* Staint. — Wildhern (**12**) 1.iv.1998 — DGG

247 *T. trinotella* Thunb. — Abercamlo Bog (**43**) 21.v.1998 — AMD

BUCCULATRICIDAE

266 *Bucculatrix nigricomella* (Zell.) — Pitcaple (**93**) 13.vii.1997 — MRY

GRACILLARIIDAE

284 *Caloptilia rufipennella* (Hübn.) — Dyserth (**51**) vacated mines and spinnings on *Acer pseudoplatanus* 4.vii.1998 — SHH & IFS

285 *C. azaleella* (Brants) — Prestbury (**58**) 6.vi.1996 — D. J. Poynton *per* SHH

290 *C. semifascia* (Haw.) — Ruthin (**50**) mines and spinnings on *Acer campestre* 11.vii.1998, moths bred — SHH & IFS

294 *Aspilapteryx tringipennella* (Zell.) — Embo (**107**) 27.vi.1998 — SEM

305 *Parornix scoticella* (Staint.) — Strathconan (**106**) 27.vi.1998 — SEM

315 *Phyllonorycter harrisella* (Linn.) — Gairloch (**105**) v.1998 — P. Entwistle *per* MRY

317 *P. heegeriella* (Zell.) — Askham Bar, York (**64**) 30.vii.1998 — MRB

321a *P. platani* (Staud.) — Southampton (**11**) mines on *Platanus* 7.xi.98 — P.A. Budd *per* JRL; Saffron Walden (19) mines on *Platanus* 9.xi.1998 — AME; Bedford (**30**) mines xi.1998 — DVM

332a *P. leucographella* (Zell.) — Bristol and Bath (**6**) mines on *Pyracantha* xii.1998 — RJH; North Bradley (**8**) moths bred from *Pyracantha* 23.iv.1998 — EGS & MHS; Southsea (**11**) many mines on *Pyracantha* 21.1.1998 — JRL; Basingstoke (**12**) mines 17.i.1998 — A.H. Dobson *per* JRL; Bristol (**34**) mines 14.xii.1998 — RJH; Stockport (**58**) mines 31.x.1998 — SHH; York (**62**) moths bred from several locations iii-iv.1998 — MRB

342 *P. coryli* (Nic.) — Glasha Crossroads (**H14**) mines 8.x.1998 — KGMB

343 *P. quinnata* (Geoff.) — Sale (**58**) mines on *Carpinus* 27.ix.1998 — SHH

362 *P. acerifoliella* (Zell.) — Poulton (**58**) mines on *Acer campestre* 3.x.1998 — SHH

368 *Phyllocnistis unipunctella* (Steph.) — Prestatyn (**51**) mine on *Populus* sp. 8.vii.1998 — SHH; Flixton (**59**) 3.viii.1998 — K. McCabe *per* SHH; Helmsley (**62**) moth bred 29.viii.1998 — MRB

CHOREUTIDAE

386 *Tebenna micalis* (Mann) — Barnstaple (**4**) several larvae and one pupa 6.viii.1998 — RJH

YPONOMEUTIDAE

401 *Argyresthia laevigatella* (Heyd.) — Hamsterley Forest (**66**) vacated larval workings on *Larix* 23.vi.1998 — DJLA & JRL; Balblair Woods (**107**) vacated larval workings on *Larix* 27.vi.1998 — SEM

409a *A. trifasciata* Staud. — Farnborough (**12**) 20.v.1998 — R.W. Parfitt, *Ent. Rec.* **111**: 44; Raynes Park (**17**) a few 20-23.v.1998 — MSP

409b *A. cupressella* Wals. — Holland Park, Kensington (**21**) 3.vi.1998 — T.H. Freed, *Ent. Gaz.* **50**: 16

413 *A. sorbiella* (Treits.) — Denbies (**17**) 20.vi.1998 — MSP

416 *A. glaucinella* (Zell.) — Studham, and other sites (**30**) larval feedings iv.1998 — DVM; Highfield Spinney (**31**) 25.iv.1998 — BD; Yardley Chase (**32**) larva 23.iv.1998, moth bred — DVM

427 *Yponomeuta cagnagella* (Hübn.) — Oldmeldrum (**93**) larvae on *Euonymus europaeus* vi.1997, moths bred — MRY

451 *Ypsolopha mucronella* (Scop.) — Kilcolman Wildfowl Range (**H5**) 8.ii.1998 — A.C. Johnson *per* KGMB, **New to Ireland**

458 *Y. alpella* ([D. & S.]) — Heald Green (**58**) 11.viii.1998 — B.T. Shaw *per* SHH

462 *Y. sequella* (Clerck) — Leith (**83**) 16.ix.1997, second Scottish record — D. Robertson *per* KPB

469 *Eidophasia messingiella* (F. v. R.) — Flixton (**59**) 23.vi.1997 — K. McCabe *per* SHH

473 *Acrolepiopsis assectella* (Zell.) — Raynes Park (**17**) 7.viii.1998 — MSP

OCHSENHEIMERIIDAE

251 *Ochsenheimeria taurella* ([D. & S.]) — Flanders Moss (**87**) 1.viii.1998 — KPB, **First confirmed Scottish record**

LYONETIIDAE

264 *Bedellia somnulentella* (Zell.) — Stockport (**57**) larval feeding signs on *Calystegia* 29.viii.1998 — IFS; New Brighton (**58**) larvae and pupae on *Calystegia* 21.viii.1998, moths bred — IFS & D.J. Poynton; Flixton (**59**) mines 9.ix.1998 — K. McCabe *per* SHH; Ballynalahessery (**H6**) larvae 8.viii.1998; Ardamine (**H12**) pupa 12.viii.1998 — KGMB

COLEOPHORIDAE

487 *Metriotes lutarea* (Haw.) — Fleet Pond (**12**) 22.iv.1998 — DGG

510 *Coleophora juncicolella* Staint. — Skipwith Common (**61**) cases swept from *Calluna* 2.v.1998 — HEB; Wooler (**68**) 27.vi.1998, det. JRL — JTR

517 *C. frischella* (Linn.) — Ladywell (**8**) 19.viii.1998 — EGS & MHS

518 *C. mayrella* (Hübn.) — Littleferry Links (**107**) 27.vi.1998 — SEM

524 *C. lithargyrinella* Zell. — Minterne Seat Coppice (**9**) one case on *Stellaria holostea* 6.iv.1998 — PHS

556 *C. trochilella* Dup. — Kincraig Point (**85**) cases on *Achillea millefolium* 28.iii.1998, moths bred — KPB

561 *C. therinella* Tengst. — Westmancote (37) thirty cases on *Fallopia convolvulus* 8.ix.1998 — ANBS

565 *C. saxicolella* Dup. — Findhorn Bay (**95**) 17.vii.1998; Nairn (**96**) 11.vii.1998, both genitalia det. JRL — JTR

573 *C. atriplicis* Meyr. — Church Norton (**13**) one at m.v., genitalia checked, 3.vii.1998 — IRT & JRL

577 *C. artemisicolella* Bruand — Camber (**14**) a few cases on *Artemisia vulgaris* 10.ix.1998 — MSP

582 *C. glaucicolella* Wood — Nairn (**96**) 11.vii.1998, genitalia det. JRL — JTR

586 *C. adjunctella* Hodgk. — Nairn (**96**) 11.vii.1998, genitalia det. JRL — JTR

ELACHISTIDAE

590 *Perittia obscurepunctella* (Staint.) — Picket Wood (**8**) 25.iv & 5.v.1998 — EGS & MHS

610 *Elachista argentella* (Clerck) — Embo (**107**) 27.vi.1998 — SEM

611 *E. triatomea* (Haw.) — Nairn (**96**) 10.vii.1998 — JTR; Embo (**107**) 27.vi.1998 — SEM

613 *E. subocellea* (Steph.) — Rosemarkie (**106**) 28.vi.1998 — SEM

626 *Biselachista serricornis* (Staint.) — Trowlesworthy Warren (**3**) one larva mining cambium and another in stem of *Eriophorum angustifolium* 14 & 19.vi.1998 — RJH, *Ent. Gaz.* **50**: 69-70

628 *B. eleochariella* (Staint.) — Bagmere (**58**) 14.vii.1997, genitalia det RIH — SHH

632 *Cosmiotes consortella* (Staint.) — West Lavington Down (**8**) 12.viii.1998 — EGS & MHS

OECOPHORIDAE

634 *Schiffermuelleria grandis* (Desv.) — Canonteign Barton (3) larvae and pupae under bark of dead ivy 4.iv.1998, moths bred — RJH

635 *Denisia subaquilea* (Staint.) — Haytor (3) two cocoons amongst spun dead leaves of *Vaccinium myrtillus* 7 & 14.v.1998, moths bred — RJH; Nipstone Rock (**40**) 1.vi.1998 — SHH, IFS & D.J. Poynton

636 *D. similella* (Hübn.) — Ordiquhill (**94**) vi.1997 — R. Leverton *per* MRY

637 *Crassa tinctella* (Hübn.) — Denbies (17) one 31.v.1998 — MSP

640 *Batia lunaris* (Haw.) — Flixton (**59**) 9.viii.1998 — K. McCabe *per* SHH

641 *B. lambdella* (Don.) — Nairn (**96**) 11.vii.1998 — JTR

642 *B. unitella* (Hübn.) — Chester (**58**) 27.viii.1998 — T. Edmondson *per* SHH

644 *Borkhausenia fuscescens* (Haw.) — Webbington (6) larvae amongst dead leaves of *Chamaecyparis* sp. 28.ix.1998, larva previously undescribed — RJH, *Ent. Gaz.* in preparation

660 *Pseudatemelia josephinae* (Toll) — Studham (**30**) 24.vii.1998 — C.R. Baker *per* DVM

676 *Depressaria pulcherrimella* Staint. — Gilfach Farm NR (**43**) 2.viii.1998 — AMD

677 *D. douglasella* Staint. — Letcombe Regis (**22**) 15.viii.1998, genitalia det. MFVC — P.D. Kyle *per* MFVC

678 *D. sordidatella* Tengst. — Gilfach Farm NR (**43**) 2.viii.1998, genitalia det. JRL — AMD

690 *Agonopterix cnicella* (Treits.) — Hilbre Island (**58**) 31.viii.1997 — G. Broad *per* SHH

698 *A. kaekeritziana* (Linn.) — Ordiquhill (**94**) viii.1998 — R. Leverton *per* MRY

702 *A. assimilella* (Treits.) — Harlestone Heath NR (**32**) larvae 20.v.1998 — DVM

708 *A. carduella* (Hübn.) — Dyserth (**51**) larva on *Centaurea nigra* 3.vii.1998, moth bred — IFS; Rosemarkie (**106**) larvae on *Cirsium vulgare* 28.vi.1998, moths bred – SEM

714 *A. yeatiana* (Fabr.) — Bunmow, Ennis (**H9**) 2.viii.1998 — KGMB

716 *A. rotundella* (Dougl.) — Freshwater (10) 16.iii.1998 — SAK-J

GELECHIIDAE

727a *Metzneria aprilella* (H.-S.) — Westmancote (**37**) larvae in seedheads of *Centaurea scabiosa* collected xi.1997, moths emerged 2.vii.1998 — ANBS

729 *Isophrictis striatella* ([D. & S.]) — Cold Oak Copse (**32**) 31.viii.1998 — DVM

730 *Apodia bifractella* (Dup.) — Cockayne Hatley (**30**) two in RIS trap 13-19.viii.1997 — DVM; Rixton Clay Pits (**59**) 19.viii.1998 — SHH & K. McCabe

732 *Eulamprotes unicolorella* (Dup.) — Wooler (**68**) 27.vi.1998 — JTR

728 *Monochroa cytisella* (Curt.) — Cooper's Hill (**30**) 26.vii.1992 — DVM

735 *M. tenebrella* (Hübn.) – Strathconan (**106**) 27.vi.1998 – SEM

740 *M. hornigi* (Staud.) — Elstead (17) larvae in dead stems of *Persicaria* sp. 15.xi.1997, moths bred — RJH & JRL, *Ent. Gaz.* **50**: 57-58

747 *Chrysoesthia sexguttella* (Thunb.) — Stalmine (**60**) 5.vi.1998 — SMP

748 *Ptocheuusa paupella* (Zell.) — Rosslare Harbour (**H12**) larva 10.viii.1998 — KGMB

780 *Bryotropha similis* (Staint.) — Embo (**107**) 27.vi.1998 — SEM

781 *B. mundella* (Dougl.) — Findhorn (**95**) 26.vi.1998 — SEM; Nairn (**96**) 10.vii.1998 — JTR

786 *B. desertella* (Dougl.) — Findhorn (**95**) 26.vi.1998 — SEM

787 *B. terrella* ([D. & S]) — Embo (**107**) 27.vi.1998 — SEM

788 *B. politella* (Staint.) — Embo (**107**) 27.vi.1998 — SEM

760 *Exoteleia dodecella* (Linn.) — Kyloe Wood (**68**) 3.vii.1998 — JTR

769 *Teleiodes wagae* (Nowicki) — Ashstead Common (**17**) 14.v.1998 — MSP

771 *T. alburnella* (Zell.) — Underlaid Wood (**69**) 10.viii.1998 — SMP

772 *T. fugitivella* (Zell.) — Lightfoot Green (**60**) 20.vi.1998 — SMP

776 *Teleiopsis diffinis* (Haw.) — Luffness Links (**82** 16.vii.1998 — KPB; Littleferry (**107**) 27.vi.1998 — SEM

801a *Gelechia senticetella* (Staud.) — Crayford and Dartford (16) larvae on *Chamaecyparis lawsoniana* 21.iii.1998, moths bred — RJH & JRL; Canvey Island (18) larvae on *Chamaecyparis lawsoniana* 29.xi.1997 & 4.iii.1998, moths bred — RJH, *Ent. Gaz.* in preparation

802a *G. sororculella* (Hübn.) — New Mills (**47**) 3.vi.1998, larvae on *Salix caprea*, moths bred — IFS

803 *G. muscosella* Zell. — Blacktoft (**63**) 5.vii.1998, genitalia det. HEB — A.S. Ezard *per* HEB

813 *Scrobipalpa salinella* (Zell.) — Nairn (**96**) 11.vii.1998, det. JRL — JTR

829 *Caryocolum marmoreum* (Haw.) — Findhorn (**95**) 26.vi.1998 — SEM

832a *C. blandelloides* Karsholt — Embo (107), Littleferry (107) 27.vi.1998, Rosemarkie (**106**) 28.vi.1998 many larvae in seedheads of *Cerastium fontanum*, moths bred — SEM, account of its original discovery in 1994, and life history — *Ent. Gaz.* **50**: 149-154

797 *Neofaculta ericetella* (Geyer) — Dunnet Head (**109**) 25.v.1998 — JTR

856 *Anarsia spartiella* (Schrank) — Pennerley (**40**) larvae on *Ulex* 5.vi.1998, moths bred — IFS & D.J. Poynton

866 *Brachmia blandella* (Fabr.) — Flixton (**59**) 8.vii.1997 — K. McCabe *per* SHH

AUTOSTICHIDAE

870 *Oegoconia quadripuncta* (Haw.) — Luton (**30**) 8.viii.1998, det. DVM — R. Wilson *per* DVM

BLASTOBASIDAE

874 *Blastobasis decolorella* (Woll.) — Findhorn Bay (**95**) 8.vii.1998 — JTR; Fairy Glen, Black Isle (**106**) 26.vi.1998 — SEM

BATRACHEDRIDAE

879 *Batrachedra pinicolella* (Zell.) — Hartlebury Common (**37**) 29.vi.1998 — ANBS

MOMPHIDAE

881 *Mompha terminella* (H. & W.) — Chittoe (7) melanic form 9.vi.1998, first VC 7 record since 1880 — EGS & MHS

891 *M. sturnipennella* (Treits.) — Bouldnor Forest (**10**) larva on *Chamerion* 26.viii.1998, emerged 11.ix.1998 — D.T. Biggs *per* JRL

COSMOPTERIGIDAE

899 *Pancalia leuwenhoekella* (Linn.) — Portsdown (11) several fresh specimens swept from *Viola hirta* 14.vii.1998, very late date ? indicating second brood — IRT & JRL; Gait Barrows NNR (**60**) 15.v.1998 — SMP

906 *Blastodacna atra* (Haw.) — Cockayne Hatley (**30**) one in RIS trap viii.1998 — DVM; Fineshade (**32**) one in RIS trap 26-31.viii.1993 — DVM

SCYTHRIDIDAE

915 *Scythris picaepennis* (Haw.) — Denbies Hillside (**17**) 20.vi.1998 — MSP; Gait Barrows NNR (**60**) 16.vii.1998, genitalia det. — SMP; Cademuir Hill (**78**) larvae on *Lotus corniculatus* 24.v.1998, moths bred — KPB; Littleferry (**107**) 27.vi.1998 — SEM

917 *S. empetrella* K. & N. — Findhorn (95) several 26.vi.1998 — SEM

TORTRICIDAE

946 *Aethes rubigana* (Treits.) — Gortdrum (**H10**) 24.vii.1998 — KGMB

947 *A. smeathmanniana* (Fabr.) — Nairn (**96**) 10.vii.1998 — JTR

951 *A. beatricella* (Wals.) — Askham Bar, York (**64**) moth bred 10.vi.1998 — MRB

974 *Argyrotaenia ljungiana* (Thunb.) — Ramsey (**31**) 8.viii1998 — D. Evans *per* BD

976 *Archips oporana* (Linn.) — Hurn (11) 21.vii.1998, first vc record for over 100 years — M. Jeffes *per* PHS

985 *Cacoecimorpha pronubana* (Hübn.) — Heworth, York (**62**) 24.ix.1998 — MRB; Rossington (**63**) 17.viii.1998 — RIH

991 *Clepsis senecionana* (Hübn.) — Pant (**47**) 16.v.1998 — SHH

994 *C. consimilana* (Hübn.) — Nairn (**96**) 10.vii.1998 — JTR

998 *Epiphyas postvittana* (Walk.) — Rossington (**63**) 28.viii.1998 — RIH

999 *Adoxophyes orana* (F. v. R.) — Icklesham (14) 28.viii.1998 — I. Hunter *per* MSP

1025 *Tortricodes alternella* ([D. & S.]) — Kilcolman Wildfowl Refuge (**H5**) 18.ii.1998 — A.C. Johnson *per* KGMB

1027 *Neosphaleroptera nubilana* (Hübn.) — Clayton Green (**59**) 11.vii.1998, genitalia det. — SMP

1041 *Acleris sparsana* ([D. & S.]) — Rosemarkie (**106**) larvae on *Acer pseudoplatanus* 28.vi.1998 — SEM

1042 *A. rhombana* ([D. & S]) — Strathconan (**106**) 27.vi. 1998, larvae — SEM

1044 *A. ferrugana* ([D. & S.]) — Gight (**93**) 11.x.1998 — MRY

1059 *A. abietana* (Hübn.) — Bridge of Avon (**94**) pupae on *Abies procera* 11.ix.1998, moths bred — RJH

1069 *Celypha aurofasciana* (Haw.) — Hembury Woods (3) 24.vii – 14.viii.1998 — B.P. Henwood & RJH

1071 *Olethreutes arbutella* (Linn.) — Dovercourt (**19**) 7.viii.1997, det. K.R. Tuck — C. Gibson *per* BG, **New to England**

1079 *Piniphila bifasciana* (Haw.) — Gilfach Farm NR (**43**) 2.viii.1998 — AMD

1082 *Hedya pruniana* (Hübn.) — Rosemarkie (**106**) 28.vi.1998 — SEM

1101 *Endothenia ustulana* (Haw.) — Sharnbrook (**30**) 11.vii.1998 — DVM

1107 *Lobesia botrana* ([D. & S.]) — Plymouth (**3**) larva in plum from supermarket 6.viii.1998, moth bred — RJH

1110 *Bactra furfurana* (Haw.) — Embo (**107**) 27.vi.1998 — SEM

1111 *B. lancealana* (Hübn.) — Trowlesworthy Farm (3) larvae in stems of *Eriophorum angustifolium* 3-19.vi.1998, moths bred, foodplant not previously recorded in Britain — RJH

1111a *B. lacteana* (Caradja) — Plaitford (**8**) a few at m.v. 31.vii.1998 — SMP & JRL; many disturbed from amongst *Carex* spp. 6.viii.1998 — IRT & JRL

1118 *Ancylis uncella* ([D. & S.]) — Holcroft Moss (**59**) 5.vii.1998 — SHH & K. McCabe

1124 *A. tineana* (Hübn.) — Tulloch (**96**) larvae on *Betula* 9.ix.1998 — RJH & MRY, *Ent. Gaz.* in preparation

1128 *A. myrtillana* (Treits.) — Shelve (**40**) 31.v.1998 — SHH, IFS & D.J. Poynton

1136 *Epinotia immundana* (F. v. R.) — Ordiquhill (**94**) 9.vi.1997 — R. Leverton *per* MRY

1144 *E. signatana* (Dougl.) — Llanddulas (**50**) 9.vii.1998 — SHH

1147 *E. cruciana* (Linn.) — Ordiquhill (**94**) vii.1998 — R. Leverton *per* MRY

1151 *E. trigonella* (Linn.) — Oldmeldrum (**93**) 8.ix.1998 — MRY

1174 *Epiblema cynosbatella* (Linn.) — Embo (**107**) 27.vi.1998 — SEM

1180 *E. tetragonana* (Steph.) — Findhorn Bay (**95**) 8.vii.1998 — JTR; Rosemarkie (**106**) 28.vi.1998 — SEM

1182 *E. turbidana* (Treits.) — Fulford Ings (**61**) 10.vii.1998 — MRB

1196 *Eucosma metzneriana* (Treits.) — Wilmington (**16**) 6 & 12.vi.1998, probable breeding colony — D.O'K

1205 *Spilonota ocellana* ([D. & S.]) — Ordiquhill (**94**) viii.1997 — R. Leverton *per* MRY

1250 *Cydia lathyrana* (Hübn.) — Lingfield (17) v.1998 — J.H. Clarke *per* RMP

1251 *C. jungiella* (Clerck) — Ordiquhill (**94**) v.1998 — R. Leverton *per* MRY; Spiddal (**H16**) 17.v.1998 — KGMB

1252 *C. lunulana* ([D. & S.]) — Knightsford Bridge (**37**) three 24.v.1998 — ANBS

1254 *C. strobilella* (Linn.) — Acharn (**90**) larvae in cones of *Picea abies* 26.iv.1998, moths bred — KPB

1266a *C. illutana* (H. – S.) — Coggeshall (**19**) 31.v.1997 — BG

EPERMENIIDAE

480 *Epermenia profugella* (Staint.) — Askham Bar, York (**64**) moth bred 11.vi.1998 — MRB

483 *E. chaerophyllella* (Goeze) — Flixton (**59**) larvae on *Heracleum* 18.viii.1998 — K. McCabe *per* SHH

SCHRECKENSTEINIIDAE

485 *Schreckensteinia festaliella* (Hübn.) — Millgrange (**H31**) 14.viii.1998 — KGMB

ALUCITIDAE

1288 *Alucita hexadactyla* Linn. — West Kingston (**13**) 1998 — S. Patton *per* AMD

PYRALIDAE

1289 *Euchromius ocellea* (Haw.) — Bangor (**49**) 10.i. & 24.ii.1998 — D. Brown, *Ent. Gaz.* **49**: 142, 198; Lightfoot Green (**60**) two 14.ii.1998 — SMP; Kilcolman Wildfowl Refuge (**H5**) 18.ii.1998 — A.C. Johnson *per* KGMB

1301 *Crambus lathoniellus* (Zinck.) — John o' Groats (**109**) 24.vii.1998 — JTR

1305 *Agriphila tristella* ([D. & S.]) — Gilfach Farm NR (**43**) 2.viii.1998 — AMD

1325 *Platytes alpinella* (Hübn.) — Bucksburn (**92**) 28.vii.1998 — RMP

1338 *Dipleurina lacustrata* (Panz.) — Cloonyross (**H10**) 24.vii.1998 — KGMB

1336 *Eudonia pallida* (Curt.) — Ardersier (**96**) 13.vii.1998 — JTR

1339 *E. murana* (Curt.) — Craig Mellon (**90**) larvae under *Racomitrium* moss 25.iv.1998, moths bred — KPB

1341 *E. lineola* (Curt.) — South Walney NR (**69**) 7.vii.1998 — several recorders *per* AMD

1345 *Elophila nymphaeata* (Linn.) — Gortdrum (**H10**) 24.vii.1998 — KGMB

1350 *Nymphula stagnata* (Don.) — Gortdrum (**H10**) 24.vii.1998; Blessington Bridge (**H20**) 11.viii.1998 — KGMB

1363 *Pyrausta ostrinalis* (Hübn.) — Inchrory (**94**) 20.vii.1997 — MRY

1367 *P. cingulata* (Linn.) — Pant (**47**) 16.v.1998 — SHH

1368 *Loxostege sticticalis* (Linn.) — Sutton Veny (**8**) 24.ix.1998 det. E.G. Smith — F.D. Lowe *per* AMD

1378 *Phlyctaenia coronata* (Hufn.) — Helvick Head (**H6**) 8.viii.1998; Mornane (**H8**) 5.viii.1998 — KGMB

1385 *Ebulea crocealis* (Hübn.) — Glenbeg Head (**H12**) 12.viii.1998 — KGMB

1388 *Udea lutealis* (Hübn.) — Gilfach Farm NR (**43**) 2.viii.1998 — AMD

1390 *U. prunalis* ([D. & S.]) — Gortdrum (**H10**) 24.vii.1998 — KGMB

1405 *Pleuroptya ruralis* (Scop.) — Killenagh (**H12**) 12.viii.1998 — KGMB

1405a *Herpetogramma licarsisalis* (Walk.) — Freshwater (**10**) one at m.v. 9.xi.1998, **New to Britain** — SAK-J, *Ent. Gaz.* **50**: 71-74

1425 *Galleria mellonella* (Linn.) — Lightfoot Green (**60**) 20.ix.1998 — SMP; Spurn (**61**) 21 & 22. vii.1998 — B.R. Spence *per* HEB

1433 *Cryptoblabes bistriga* (Haw.) — Gairloch (**105**) 26.ix.1997 — P. Entwistle *per* MRY

1447a *Sciota adelphella* (F. v. R.) — Dovercourt (19) 11.viii.1998 — BG & C. Gibson

1451 *Pyla fusca* (Haw.) — Beinn Eighe NNR (**105**) 15.vii.1998 — S. Bosanquet *per* AMD

1452 *Phycita roborella* ([D. & S.]) — Gilfach Farm NR (**43**) 2.viii.1998 — AMD

1454 *Dioryctria abietella* ([D. & S.]) — Oldmeldrum (**93**) 9.viii.1998 — MRY

1461 *Assara terebrella* (Zinck.) — Ramsey (**31**) 8.viii.1998 — D. Evans *per* BD

1462 *Pempeliella dilutella* ([D. & S.]) — Clydach Gorge (**42**) 28.vii.1998 — S. Bosanquet *per* AMD

1465 *Nephopterix angustella* (Hübn.) — West Kingston (**13**) 1998 — S. Patton *per* AMD; Usk (**35**) 6.ix.1998, det. S. Bosanquet — A.E.D. Hickman *per* AMD

1470 *Euzophera pinguis* (Haw.) — North Stainley (**65**) viii.1998 — J. Warwick *per* HEB

1478b *Vitula biviella* (Zell.) — Lydd (**15**) 13.vii.1997, 5,17,25.vii.1998, **New to Britain** — K. Redshaw, *Ent. Gaz.* **50**: 77-82

1481 *Homoeosoma sinuella* (Fabr.) — Lightfoot Green (**60**) 19.vi.1998 — SMP

1483 *Phycitodes binaevella* (Hübn.) — Gilfach Farm NR (**43**) 2.viii.1998 — AMD

1485 *P. maritima* (Tengst.) — Nairn (**96**) 11.vii.1998, det. JRL — JTR

PTEROPHORIDAE

1496 *Cnaemidophorus rhododactyla* ([D. & S.]) — Denbies & White Downs (**17**) larvae on *Rosa* 25.v.1998 — G.A. Collins & MSP

1497 *Amblyptilia acanthadactyla* (Hübn.) — Curracloe (**H12**) 5.ix.1998, genitalia det. KGMB — C.J. Wilson *per* KGMB

1507 *Stenoptilia zophodactylus* (Dup.) — Knightsford Bridge (**37**) many 1.ix.1998 — ANBS; Tulloch (**96**) 10.ix.1998 — RJH & MRY

Corrections to 1997 Review

142 *Nematopogon pilella* ([D. & S.]) — date should read 30.v.1997

409a *Argyresthia trifasciata* Staud. — vice-county should be **58** and not 57

665 *Dasystoma salicella* (Hübn.) — the record from Badbury Rings (9) should be deleted, owing to misidentification

960 *Falceuncaria ruficiliana* (Haw.) — the record should be deleted, owing to misidentification

1343 *Eudonia delunella* (Staint.) — the record was not a new vice-county record

1362 *Pyrausta purpuralis* (Linn.) — the record from VC 4 was not a new vice-county record

Argyresthia trifasciata Staudiger (Lep.: Yponomeutidae) new to Scotland

On 3 June 1999, a single specimen of an *Argyresthia* which I did not recognise was found sitting on a leaf of *Cupressocyparis leylandii* in Bucksburn, Aberdeen (VC 92; grid reference NJ 882106). The moth was instantly recognised as *Argyresthia trifasciata* Stdgr. by Dr J. R. Langmaid, when I showed it to him the following week. *Argyresthia trifasciata* was first recorded in Britain from VC 21 (Middlesex) in 1982 by R. A Softly (Emmet, *Ent. Rec.* **94**: 180-182). Elsewhere in Britain, the species has been found in Farnborough, North Hampshire (VC 12) (Parfitt, *antea*: 44) and in Stockport, Cheshire (VC 58) (Langmaid & Young, *antea*: 105-119). Subsequent to these published records, the species has been found sparingly in the Raynes Park, Surrey area of London (VC 17) and in at least two other vice counties in south-east England (M. Parsons, pers. comm.). The distances between the known localities, as well as the increasing frequency of records, suggest that this species is in the process of colonisation and could turn up anywhere in Britain.– ROBERT M. PALMER, Greenburn Cottage, Bucksburn, Aberdeen AB21 9UA.

Hellinsia osteodactylus (Zell.) (Lep.: Pterophoridae) on the east coast of Scotland

On 17 July 1999 I found several specimens of *Hellinsia osteodactylus* (Zell.) at St Cyrus NNR, on the coast of Kincardineshire (VC 91, grid reference NO 76), one of which I dissected, so as to confirm the identification. Believing this species to be virtually unknown in Scotland, I have traced previous records, thanks to kind help from Keith Bland, who consulted the Scottish Insect Record Index (SIRI) at the National Museum of Scotland in Edinburgh, and Colin Hart.

Bolam (1929, *Hist. Berwick. Nat. Club* **26** (1926-28): 352), refers to a record from near Kelso (grid reference NT 73) "a year or two after 1880", and another from Hawick (NT 51), the latter in a list produced in 1895 by Guthrie (both in VC 80). Elliot (1901, *Fauna, Flora and Geology of the Clyde Area*, British Association in Glasgow) notes Garelochhead (VC 90, NS 29) and gardens at Fintry (VC 86, NS 68), but with no dates included. Finally Bertram (1936, *Proc. Roy. Phys. Soc, Edin.* **23**: 47) includes the species in the list of Lepidoptera recorded from Canna by the Glasgow University Exhibitions of 1936 and 1937 (from below Compass Hill, VC 104, NG 20). However, the only two plume moths included on the list are *H. (P.) osteodactylus* and *Emmelina (P.) monodactyla* (Linn.), neither of which seem likely, and Wormell (1983, *Proc. Roy. Soc. Edin.* (**B**) 83: 541) omits both, after having taken advice from J. L. Campbell, who lived on Canna and formed the definitive list of Lepidoptera for the island.

The species is still known from both north-east and north-west England and is likely to be a long-established, but over-looked, resident at St Cyrus, which has a markedly milder and drier climate than the rest of north-east Scotland. It shares many scarce species with other coastal sites in south-east Scotland and Fife and so *H. osteodactylus* may well be found elsewhere.– MARK YOUNG, Culterty Field Station, University of Aberdeen, Newburgh, Aberdeenshire AB41 6AA.

Dewick's Plusia *Macdunnoughia confusa* Steph. (Lep.: Noctuidae) at Staines, Middlesex in 1999 and the autumnal occurrence of *Orthopygia glaucinalis* L. (Lep.: Pyralidae)

The occasional appearance of migrant moth species in my garden m.v. trap at Staines, Middlesex has led me to believe that Staines is not on any regular migrant flight path, except for human arrivals at nearby Heathrow Airport. It was, therefore, a surprise to find that the first moth I saw in the trap on the morning of 10 October 1999 was a perfect male Dewick's Plusia *Macdunnoughia confusa*. On reporting this find to Colin Plant, he informed me that it appeared to be the first record of this species from Middlesex (VC 21). Staines is also within the area covered by the London Natural History Society's surveys of moths, which extends some 32 kilometres from St Paul's Cathedral and include parts of West Kent, South and North Essex, Hertfordshire, Buckinghamshire and Surrey. *M. confusa* is not recorded from that area by Plant (1993, *Larger Moths of the London Area*) and Colin confirms that he has not subsequently received any records of this species from there.

The only other potential migrant species in the trap that morning was a very worn specimen of *Orthopygia glaucinalis* which normally occurs here from late June to early August. Goater (1986, *British Pyralid Moths*) remarks that *O. glaucinalis* may be an occasional migrant. On checking my records, I found that on four occasions in 1996 and 1997 I had also taken *O. glaucinalis* in the Staines m.v. trap in October. On three of these occasions it was with a primary migrant, on the night of 15 October 1996 with *Nomophila noctuella* D. & S. (Pyralidae), on 25 October 1996 with the Scarce Bordered Straw *Heliothis armigera* Hb. (Noctuidae) and on 25 October 1997 with the Pearly Underwing *Peridroma saucia* Hb. (Noctuidae). This may lend some support to the suggestion that *O. glaucinalis* is an occasional migrant and, interestingly, Colin Plant has informed me that he took a single male at m.v. light in Broxbourne Woods, Hertfordshire on the same date. On the other hand these may be examples of a second brood, an explanation given for specimens of *O. glaucinalis* taken by Ray Softly in Hampstead in October 1996 (*Ent. Rec.* **110**, 113).– JOHN MUGGLETON, 30 Penton Road, Staines, Middlesex TW18 2LD.

THE INFLUENCE OF CHILDHOOD ON AN ENTOMOLOGIST AND A VERY RARE FRITILLARY

RUPERT BARRINGTON

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IT WAS SUGGESTED by Donald Russwurm that I put on record the circumstances surrounding the capture of a very rare and extreme melanic aberration of *Argynnis aglaja* L. in Ireland in July 1998. This seemed to present an opportunity to pursue, initially, a train of thought that has intrigued me for some time. That is those experiences early in our lives that headed us down a lifelong pathway of entomology as opposed to any of the other avenues of interest that life has to offer. This line of thinking seems to lead naturally to the incident concerning the melanic *A. aglaja*.

Sir David Attenborough was once asked "When did you acquire your interest in nature?" He replied "When did you lose yours?" His point was that most, if not all, children seem to have an innate interest in wildlife. In many it doesn't last or, if not entirely lost, then the desire is lost to experience it in the dirty knees, middle of a nettle patch, hands-on sort of way. Why? Perhaps their human environment discourages it (though that has failed to deter many a naturalist), or perhaps, more crucially, their early experiences of nature just did not fire something deep enough within before some other experience did.

The great American scientist Professor E. O. Wilson, a world authority on ant biology amongst many other things, was a childhood naturalist and a really keen one. That early passion led to his becoming arguably one of the great thinkers of the 20th Century. His autobiography (1994. *Naturalist*. Island Press, Washington DC) closely examines how his childhood experiences shaped the rest of his life. He writes "hands on experience at the critical time, not systematic knowledge, is what counts in the making of a naturalist. Better to be an untutored savage for a while....better to spend long stretches of time just searching and dreaming." He did just that as a child, spending much of one summer, for example, just sitting on a jetty at Paradise Beach, Florida, staring into the water below.

One of his most vivid memories from that time was of the moment when the shape of a huge Ray materialised from the dark sea bed and floated beneath his feet. It was far bigger than anything he had ever seen before – it was a monster. But it was not just a monster in the physical sense. One can imagine the child gasping in wonder, because to him it was a "monster" of the mythical kind; something of a type or on a scale that he had not previously realised could exist in his own experience of the world. He tells us this story because he feels that if the child is receptive then such compelling events burn deep in the memory, and compelling events in childhood can set a pattern of behaviour or interest for life.

I wonder if takes some kind of "monster" experience in childhood to turn many of us into entomologists. If so then the definition of "monster" must be a little broader than just "very large things". It must be applicable to insects. A monster may be simply a new thing or something that has become a personal myth through old book illustrations perhaps, or tales told by adults. Above all it must be something that

stimulates the imagination. After all, Wilson says the child naturalist spends time "just searching and dreaming". Dreaming of what if not of finding something new or special round the next bend or under the next stone? I wonder how many grown-up entomologists, however seriously scientific their intent, cannot relate to that?

The Rev. Greene (1870. *The insect hunter's companion.* Van Voorst, London), of pupa-digging fame, put his finger on something when he wrote of his childhood butterfly-hunting experiences. "Then, everything was rare. I look back with something very like regret to the time when I used to pin...a number of *Satyrus janira* [*Maniola jurtina*] into the crown of my hat and think it a good day's work". Regret, because only in those childhood days could he experience so often the excitement of novelty. In some the thrill associated with the discovery of something rare or special is an intoxicating thing and once set within the mind at an early age one wishes to experience it again and again. Why else would P. B. M. Allen write, in his playful "Letter to a young lady contemplating marrying an entomologist" (1948. *Moths and memories.* Watkins & Doncaster) "I gather from your last letter that you contemplate marrying young Mr. Hunter-Bugge, and that he is addicted to the collecting of insects". Addicted, in some degree, is the word. As so often, Allen's light touch masks a penetrating observation. The "letter" continued "..when once a man, especially a young one, has become afflicted with this mania it is rarely indeed that he can be cured". In this context it is the collecting the things of one's dreams that gives the thrill, but perhaps ultimately, the thrill really lies in the finding and the seeing.

Writing of the way he has come to view the world (which, in effect, is the sum of his scientific achievements) E. O. Wilson wrote "although the tributary sources extend far back in the memory, they still grip my imagination, as I write, in my sixty-sixth year. I am reluctant to throw away these precious images of my childhood and young manhood. I guard them carefully as the wellsprings of my creative life". If he could live his life again he would "keep alive that little boy of Paradise Beach who found wonder in a scyphozoan jellyfish and a barely glimpsed monster of the deep." Without the experiences of that little boy there might have been no adult sense of wonder at the world in which he lives.

Those "tributary sources" are not the province of entomologists alone. Angler Chris Yates writes books on fishing that are both charming and whimsical, yet full of subtle insight. Nowhere is his writing more lyrical than in describing his childhood inspirations. He writes (1986. *Casting at the sun.* Pelham Books, London) of having been fascinated by old anglers' tales of the great fish said to be lurking in his village pond. They were supposedly things of a size and beauty that the young boy had neither seen nor even imagined could exist in such a mundane place. He dreamed of "fantastic-sounding creatures that lived in the deepest places in the pond". He experienced also "a change in the way I looked at the muddy pool. Especially in the evening....I seemed to sense a shadowy transformation. Perhaps it was just my imagination, but then perhaps the pond really did harbour monsters".

Some time later the boy asked what the movement was that he could see in a keep net belonging to one of those old anglers on the pond. It was a fish that Yates describes as "beautiful, almost terrible. The most miraculous thing I'd ever seen." "What is it?", he had asked in a whisper. "Carp" replied the apparently lugubrious angler."

"Was it strange", Yates wonders "that my infant imagination should have been stirred like this? There was no logical reason for it ... yet those fish affected me likes sparks on petrol". They stimulated in him a life long need to keep returning to the childhood dream, to relive that emotion by fishing for carp in mysterious, forgotten lakes. It is a process he calls "earthing the current".

The need to "earth the current", to touch again some childhood experience, is not a predicament (however enjoyable) confined only to those with an interest in the nature. In some way it may be common to everyone. Stories of the same nature are told by people devoted, for example, to football or mountains, sailing or cricket. Probably scrabble and stamp collecting too. Perhaps today's rather maligned accountants were inspired by an early brush with some gigantic prime number. Who knows? It would be nice to think so.

The "monster myths" that stoked my own precocious interest in insects were told by a grandfather and fuelled by his old books filled with dark, dramatic illustrations. They were tales with a touch of romance about them, like the the capture of a Peacock Butterfly that turned out, in the net, to be a Camberwell Beauty, or the unexpected discovery of great, rare Hawkmoth caterpillars the size of an outstretched, grandfatherly finger. I dreamed of rare butterflies and moths in remote and lonely places. The actual finding, for the first time, of some of those "mythical" things was a thrill I cannot forget. Today Lepidoptera and "lost places" are becoming ever fewer in England and I have found myself travelling to increasingly distant parts of the British Isles in my attempts to "earth the current". If those places should be sparsely inhabited and have, attached to them, a certain entomological "glamour", a place in our lore; then so much the better. Islands fit the bill very well.

During July 1998, tired from the demands of work, I travelled with a friend to Western Ireland. After so long confined to the city I needed, once again, to experience open, lonely country with precious butterflies.

Parts of the west coast of Ireland are littered with islands and what might be called "spits" which are cut off by the incoming tide. On 7 July it was a cool, grey and breezy day and showed no promise of an improvement. However in this part of the world, exposed as it is to the full eccentricities of an Atlantic climate, one must take the weather as it comes. At the morning low tide we walked across the sand and waded through the tidal streams to reach one such spit that did not appear to have been as heavily grazed as much of the local coastline.

Running down the near side was a high dune and once one crossed it the return route over the tidal flat was hidden from view. I calculated that one could have five hours to examine the area before being cut off by the in-coming tide. I had hoped that this place might hold a good colony of the increasingly scarce, and delightfully named, race mariscolore Kane of *Polyommatus icarus* Rott. However only a few

adults could be flushed from the grass while the odd individual even braved the weather to fly about in the most sheltered hollows, along with a handful of *A. aglaja*. In equally small numbers were adults, mostly male, of a large local race of *Maniola jurtina* L. ssp. *iernes* Graves. The only insects in any kind of abundance were the adults of the Burnet moth *Zygaena filipendulae* which were crawling over the flowers in their hundreds. Occasionally, unexpectedly, a Mountain Hare of the small Irish form would bolt away from some grassy tussock.

Climbing back over the dune about four hours later we were greeted not by the sight of rippled sand but by a wide expanse of water. Another calculation, rather more accurate as it turned out, suggested the spit would remain an island for about the next nine hours – a duration that was going to seem rather longer for having run out of food and water. Tired and irritated I dumped my net and bag down and tried to sleep under the shelter of a few trees. However it was too cold so eventually I stalked off round the nearest end of the island. It was almost 6 o'clock and I had had enough of looking for butterflies so I left my net and pill boxes where they were.

On the far side I was walking along the top of a high dune which dropped steeply down to the beach when I was surprised to notice a butterfly flying some way below me. With what I suppose has become second nature I looked at it very carefully, not to see which species it was, it was clearly a Dark Green Fritillary, but to check that it was a typical example. It seemed to take a while before I began to ask myself if this was not, surely, a rather curious-looking Fritillary. It gave an impression of a "flatness" in pattern, an absence of detail, which was immediately exciting.

It turned back on itself, flying low over the grass, clearly looking for somewhere to roost I followed its movements from the top of the dune, running first one way then the other as the butterfly went back and forth. At one point it flew up near me and settled on a grass head that was bobbing in the wind. I recognised the dramatically aberrant underside from the lovely illustration of an ancient specimen in Don Russwurm's book on aberrations (1978. *Aberrations of British butterflies*. Classey, Oxford). The butterfly now in front of me was a childhood "monster" – something so rare and dramatic that I had never expected to see its like in my own lifetime. I had studied that book, that very plate, since the age of thirteen. I knew the upperside of this butterfly would be almost entirely black.

I contemplated trying to throw my coat over it, then realised that, as I would have no idea what to do next, some horrible, inept disaster would probably follow. Anyway it was soon off again and resumed its hawking up and down, inspecting one clump of grass after another. Finally it fluttered over a large tussock halfway down the face of the dune and disappeared inside. I slid down after it and discovered the butterfly roosting head-up, out of the wind. There was nothing for it now but to wait until it was properly settled for the night. Half an hour later it had not moved so I judged it safe to make a dash for the net, having first tied my coat firmly to a shrub to mark the spot. The butterfly remained where I had left it and I was able to drop the net gently on top. It was a male ab. *wimani* Holmgren (see Plate A) and one of the more extreme melanic fritillaries on record.

Locals told me that they had experienced some very hot days a few weeks before, which would have been around the time the larva of this butterfly was pupating. The adult coloration in this species is not nearly so sensitive to the effect of extreme temperature during the early pupal stage as is, say, *Argynnis paphia* L., in which species hot days at pupation regularly result in melanic adults. However it seems most likely that this was the reason behind the appearance of my strange butterfly.

Before finally leaving the island at 10pm I sat and watched the light fade. Though still cloudy the last light had taken on a curious, almost luminous quality. The green grass which covered several small islands in the bay was now of a remarkably intense hue and the sand dunes stretching away along the coast seemed to give out on a pale, ethereal glow. The water that lay in ripples on the sand, or ran across it in small streams reflected, more brightly than seemed possible, the darkening sky. There were Curlews calling and probing the sand alongside small huddles of Oyster Catchers. Not a human sound could be heard. The previous year I had watched a fox walking on the shore just where I was sitting now, quite intent on its business of hunting down crabs under the sea weed. It would prod and nip before grabbing and quickly crushing them. I remembered this and was sorry not to see it again. Sitting there then, Chris Yates' words came to mind. This was "earthing the current".

Finally, at the risk of labouring a point, I might add one further quote on the theme of this piece. It was written by no less a man than the great Charles Darwin who had been a fanatical beetle-hunter in his youth. In old age he reflected on those days that had been filled with the thrilling promise of rare finds and judged them to have been among the best of his life. Despite the great achievements of his later years he never forgot that sense of excitement and once wrote to a friend, "Whenever I hear of the capture of rare beetles, I feel like an old war horse at the sound of a trumpet". In this sentiment, if in nothing else, I feel that Charles Darwin and I might have understood one another.

I must express my gratitude to Donald Russwurm who, with great generosity, included in his suggestion that I write this piece an offer to finance the colour plate that accompanies it.

The melanic forms of *Acronicta leporina* L. (Lep.: Noctuidae) in the London area

The prevalent form of *A. leporina* in Britain has for over one-hundred years been f. *grisea* Cochrane in which the forewings are sprinkled with black scales to present a pale to medium-grey background, and in this the ground colour of London specimens has remained no darker than that in specimens from much of the rest of Britain. Thus there has been no extreme melanistic trend as exhibited by ab. *melanocephala* Mansbridge which occurred on Chat Moss and the Liverpool and Manchester areas, or ab. *nigra* Tutt, the extreme black form.

However, a less extreme melanic form has occurred very sparingly in north-west Kent; this is ab. *melaleuca* Culot which is darkish-grey with the usual markings, but with the addition of a whitish fascia basal to the postmedian line and adjacent to it. On 20 June 1976 a specimen of this form attended my garden m.v. light at Dartford, agreeing precisely with Culot's description and figure. Chalmers-Hunt (1965, *Butterflies and Moths of Kent,* Sup. in *Ent. Rec.* **77**: 259) mentions a specimen of *melaleuca* also taken at Dartford by Mr Honeybourne and later deposited in the National Collection, but which I have failed to find there. However, within a series of f. *grisea* in that collection is a *melaleuca* from nearby Orpington, dated 7 July 1956. Kettlewell (1973, *The Evolution of Melanism*) makes no comment of this form, but gives one example as recorded for Deptford, Kent; I suspect this is a misprint for Dartford, probably referring to the 1955 specimen. It is interesting that the only *melaleuca* recorded are from this very limited area of north-west Kent, and that it appears to be so rare; secondly that the London area has not produced the more extreme melanic forms.

Although f. *grisea* (*brasyporina* Treits.) is not included in Kettlewell's list of melanics, it certainly is an adaptation to the atmospheric pollution and darkened environment of much of Britain during the Industrial Revolution. Chalmers-Hunt (*op. cit.*) details the development of f. *grisea,* already noticed in the woodlands of north-west Kent by 1829, to its total replacement of the typical form.

A further melanic trend is portrayed in the uncommon ab. *semivirga* Tutt in which the forewing beyond the postmedian line is considerably darkened giving a banded appearance; it is accurately figured in Newman (1874, *An Illustrated Natural History of British Moths*).– B.K. West, 36 Briar Road, Dartford, Kent DA5 2HN.

Is the Humming-bird Hawk-moth *Macroglossum stellatarum* (L.) (Lep.: Sphingidae) resident in Britain?

It is always very difficult to know whether or not a migrant from warmer parts of the world can survive the British winter. If one is discovered in January or February there is always the possibility that it has just migrated, rather than survived since the previous summer. I can offer no more than circumstantial evidence, but begin to be convinced that the Humming-bird Hawk-moth, can persist.

For the past 14 years, I have visited a garden at Churchill in Somerset, usually for brief periods, and each year I have recorded *M. stellatarum*. There is much Red Valerian *Centranthus rubra* in the garden at which the adult moths feed and are easily observed. The garden is in a sheltered valley in the Mendips where bedstraw *Galium* sp. is plentiful. In most years moths have been observed from June onwards. Surely fourteen consecutive years in the same locality is too much of a coincidence for migration to be the source every year.– David Agassiz, St Andrew's School, Turi, Private Bag, Molo, KENYA.

BOLORIA (*CLOSSIANA*) *TITANIA* (ESPER, [1793]) AND ITS OCCURRENCE IN BULGARIA (LEP.: PAPILIONOIDEA: NYMPHALIDAE)

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THE BUTTERFLY *Boloria* (*Clossiana*) *titania* (Esper, [1793]) was previously known to occur on the Balkans in the mountains of Slovenia, Croatia, Bosnia and Hercegovina and Yugoslavia (Jaksic, 1988: 143: map 128; Tolman, 1997: 164). Two males with the following data: Rila Mts: Makedonia Chalet: (UTM grid code 34TGM05): 1 August 1969; Pirin Mts: Gotse Delchev Chalet: 1900 m: (34TGM12) 29-30 July 1970: both A. Slivov leg. et coll. (in collection Institute of Zoology, Sofia) (Fig. 1) appear to be the first Bulgarian records for this species.

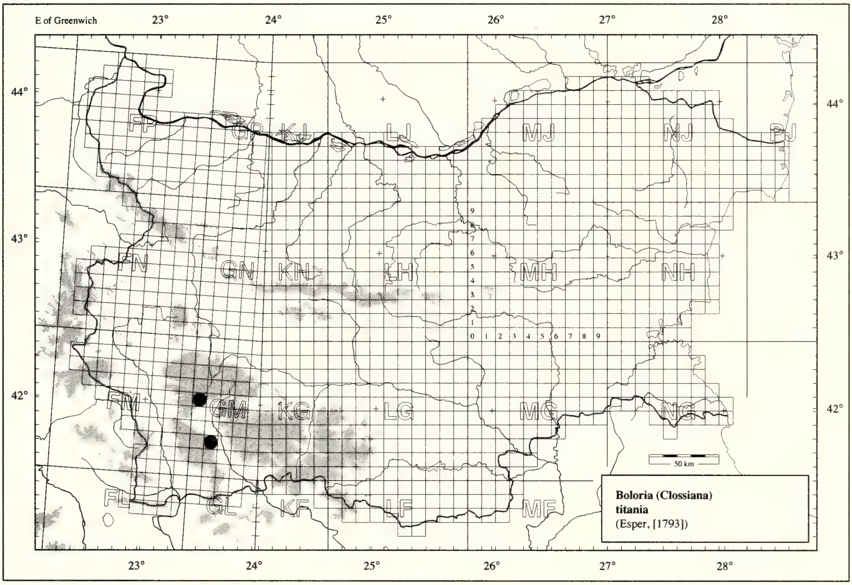

Figure 1.
UTM map of Bulgaria showing the localities of *Boloria* (*Clossiana*) *titania* (Esper, [1793]).

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CHILADES MOORE, [1881], A NEW GENUS FOR THE BULGARIAN FAUNA (LEP.: PAPILIONOIDEA: LYCAENIDAE)

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THE SMALLEST European butterfly *Chilades trochylus trochylus* (Freyer, [1845]) was previously known from Greece and European Turkey (type-locality) (Hesselbarth, van Oorschot & Wagener, 1995: 586; Tolman, 1997: 100-101). Recently a single male with the following data has been found: S Black Sea Coast: S Ahtopol: Veleka (UTM grid code 35TNG75): 16 June 1968: A. Slivov leg. et coll. (in collection Institute of Zoology, Sofia) (Fig. 1). This new record extends significantly the range of this subspecies in Europe and is also even a new genus for the Bulgarian butterfly fauna.

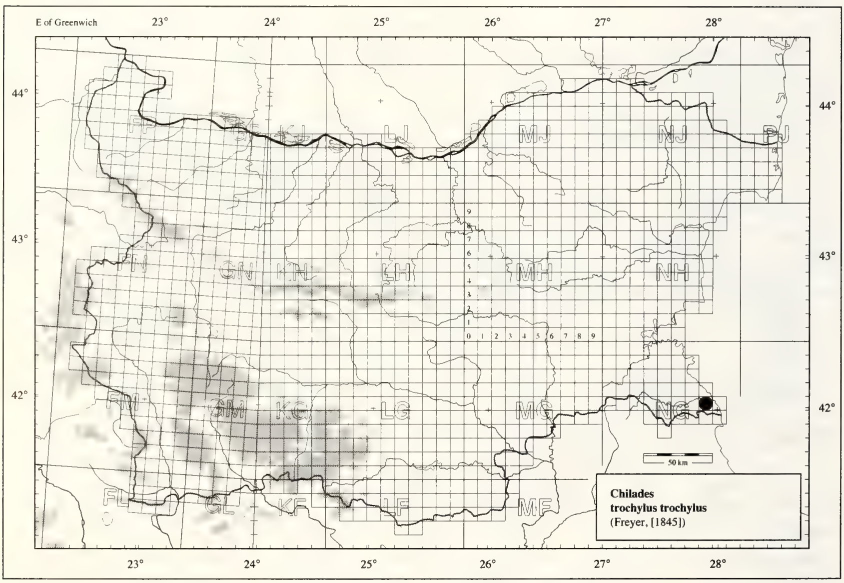

Figure 1.
UTM map of Bulgaria showing the locality of *Chilades trochylus trochylus* (Freyer, [1845]).

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THE GENETICS OF THE MELANIC AB. *NIGRICANS* CULOT OF *MELANARGIA GALATHEA* L. (LEP.: NYMPHALIDAE: SATYRINAE)

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IN SOME PARTS of its Southern European range the colour pattern of *M. galathea* is rather variable with a tendency towards melanism. Indeed, in certain areas melanic forms may predominate and examples occur in which the white ground colour is entirely obscured by black scaling. However, in England and Wales the colour pattern of the species is so remarkably consistent that specimens demonstrating any significant departure from the typical form have always been regarded as considerable rarities. A very few extreme aberrations have occasionally been recorded which are largely, or wholly, either white or black. However, there are other, somewhat less extreme aberrations, that have occurred as recurrent forms in certain localities.

R.M. Craske records that ab. *craskei* Tubbs occurred in two separate locations, in Hampshire and Sussex, at a frequency of between one aberration in twenty butterflies to one in fifty (Tubbs, 1978). N.A. Watkins (1958) reported the frequency of ab. *valentini* Williams (illustrated in Williams, 1951) in a Somerset colony to be somewhere in the order of one aberration per thirty butterflies. A.E. Collier found six specimens of ab. *aperta* Rebel in a Northants colony between 1948 and 1951 (Collier, 1954) and R. Pilcher also found an example in 1948. After 1951 the colony became reduced in size and no further specimens of this form were found. Collier bred this form and these were exhibited, with comments, at the exhibitions of the South London Entomological and Natural History Society in 1952 and 1953 (Collier 1952 and 1953).

Each of these aberrations has been bred and, as expected, all proved to have a genetic basis. Both *craskei* (*vide* Revels 1980) and *aperta* (*vide* Collier, 1954) are inherited as semi-dominants. Ab. *valentini* has only been reared to the first generation but the results also suggest either a semi-, or a full, dominant condition (Watkins 1959). Breeding experiments have shown that while certain aberrations of British Butterflies are inherited as semi- or complete dominants over the typical form, nevertheless the recessive or multifactorial modes of inheritance are far more frequent.

Ab. *nigricans* Culot is a fourth aberration that comes into the category of a recurrent form, although it was always far less frequent than either *craskei* or *valentini*. It is described (Emmet and Heath 1989, illustrated at Pl. 18 fig. 5) as having "the post discal black markings greatly extended". In fact this is only a partial description because the extension of black markings occurs in the discal areas also, albeit less dramatically. The underside of the forewing, however, is invariably typical except for a slight reduction in size of the white discal area.

Earlier this century *nigricans* was found, from time to time, in certain localities in the Gloucestershire/Somerset region. The captured specimens were generally rather minor developments of the form, but at least two striking specimens are known, for

example the male specimen illustrated in Emmet and Heath (*op. cit.*). To my knowledge, this form was last recorded by N.A.Watkins around the mid-1960's. Since that time the inevitable loss of, or change in, habitat has reduced populations of *galathea* in these areas. It seems that, like *aperta* after 1951, *nigricans* disappeared as the colonies reduced in size.

Over the course of 13 years I have spent considerable time working colonies of *galathea* over a very wide area in this district in the hope that *nigricans* might one day recur. I hoped to find a female specimen to breed from to discover whether this aberration too is inherited as a dominant over the type form.

A few locations in the region seemed to have all the attributes necessary for the production of really large populations of *galathea* should the optimal conditions of weather and grazing coincide. However, even in years when the populations were fairly good, the search for *nigricans* proved quite fruitless so I had come to assume that this form was lost. However, in 1997 one of these locations finally obliged with a sudden, unexpected and enormous increase in numbers. The population may easily have numbered several thousand butterflies, spread out over a rough grassy slope. Close searching of this colony in previous years had revealed no signs of *nigricans*. Nor did it in 1997 until, towards the end of one warm, still day I was walking from the bottom of the slope up one edge of the area, though long grass full of *galathea* basking in the evening light, when I was delighted to spot a female *nigricans* sunning herself on a knapweed flower alongside two typical males. Several examples of both sexes were subsequently captured during the rest of the flight season, though only from this small section of the colony. No example was extreme, but these aberrations stood out clearly in the field amongst the abundant typical form.

Two females were kept for breeding and, despite having to travel with me to the Outer Hebrides, they laid a total of about 200 of the hard, white and spherical eggs so characteristic of the species. They were ejected quite randomly from some perch in the cage and could be heard bouncing on the cardboard base. The butterflies fed a great deal from flowers, being particularly fond of Red Valerian *Centranthus ruber* L., but they seemed quite uninterested in the cotton wool soaked in honey water that is such a good food source for some captive butterflies. Thirty-one adults emerged in June 1998, consisting of 16 males (eight typical and eight *nigricans*), and 15 females (seven typical and eight *nigricans*). The brood ratio therefore was almost precisely one type : one *nigricans*. A number of the strongest aberrations of each sex were paired and although, like their parents, they were required to travel outside their natural range (this time to Western Ireland), they laid a total of 400-500 eggs.

A third of the eggs subsequently collapsed, but the larvae which hatched from the rest followed the pattern of the first generation in showing an excellent rate of survival up to September/October, followed quickly by heavy losses. By mid-October these larvae were dying so fast that I cleared all that remained from the pots and brought them indoors in an effort to force them through. They were put on cut grass in warm, dry conditions and given a long daylength regime (18 hours light: six dark; provided by daylight-balanced strip lights). Losses initially continued at such a

rate that half of the 110 larvae died in just two weeks. By 7 January only 23 were left, but the losses had stopped. I suspect that bringing the larvae through in this way may have prevented the total loss of this valuable brood.

The F2 brood of 23 butterflies was made up of seven females (two typical and five *nigricans*) and 16 males (four typical and 12 *nigricans*). The *nigricans* could be clearly separated into the heterozygous and homozygous forms. The final ratios of the brood were:- six type: nine heterozygous *nigricans*: eight homozygous *nigricans*. This is close to the classic 1:2:1 ratio that would be expected of a semi-dominant form, so confirming that *nigricans,* like the other aberrations of the species that have been bred, demonstrated dominance over the typical form.

Homozygous forms of *nigricans* are illustrated in Plate B and heterozygous examples of varying intensity in Plate C. Given the rarity in the field of the heterozygous form of *nigricans* it is unlikely that the homozygote form has ever been seen. Certainly the author is unaware of any museum specimens. The accompanying photographs show that the homozygote has a characteristic that clearly separates it from the heterozygote; this is the almost total suffusion of the forewing discal cell by black scaling, leaving just a tiny streak of white scales. Other areas of the wing pattern are also far more heavily melanised in the homozygote than the heterozygote, but none in so consistent a manner as to allow for clear differentiation between the two.

The fact that all four bred aberrations of *galathea* have turned out to be dominant over the typical form is an interesting finding given the relative rarity of the dominant condition amongst aberrations of British Butterflies. At present the significance of this, if any, is obscure, though an exception to a general trend is often likely to provide a fruitful line of study. Perhaps further research into the environmental conditions under which the pale and dark forms of *galathea* occur on the continent, along with some knowledge of their genetics and ecology may, when compared to these British aberrations, throw some light on the matter.

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A note on the 1998 influx of *Diachrysia orichalcea* Fabr. Slender Burnished Brass (Lep.: Noctuidae)

The capture of one of these uncommon migrant moths in my garden m.v. trap on 24 September 1998 turned out to be less rare an occurrence than I had anticipated. Records so far located confirm that at least eight examples were noted between late August and late September of that year, together with at least two from the Channel Islands, as listed below.

28 August	Longrock, Cornwall
30 August	Guernsey, Channel Islands
1 September	Guernsey, Channel Islands
1 September	Isles of Scilly, Cornwall
5 September	Boskennel, Cornwall
17 September	Cury, Cornwall
20 September	Downderry, Cornwall
20 September	Dawlish, Devon
21 September	Pilton, Glamorgan
24 September	Bere Alston, Devon

It is apparent that their distribution was highly localised, being restricted to the extreme south-west of the country, and is seems that they arrived in two distinct waves: between the end of August and the first week of September and then again almost two weeks later. Excluding those from the Channel Islands, the number in 1998 equals the eight recorded 1983 and approaches, and may yet reach or exceed, pending further records, the all-time record of ten in 1969.– R.W. Bogue, Tamar View, Tuckermarsh, Bere Alston, Devon PL20 7HB.

***Lithopane hepatica* Cl. (Lep.: Noctuidae) in north-west Kent**

Further to the example noted at my garden m.v. light at Dartford on 14 May 1989 (*Ent. Rec.* **104**: 321), I am pleased to report the presence of another specimen, on 8 April 1999, suggesting that the species is a scarce resident of this well-wooded area. However, prior to these two records there appears to be no definite record of the species for north-west Kent, and the moth is described by Chalmers-Hunt (*Butterflies and Moths of Kent,* 1966:276) as scarce and chiefly Wealden.

Collins (*The Larger Moths of Surrey,* 1997) comments that for that county the insect has recently been taken in many new localities in the north and east, but remaining scarcer than *L. ornitopus* Hufn. and *L. semibrunnea* Haw. This trend, together with the extension of range from Surrey into north-west Kent of *Aporophyla nigra* Haw. and *Chloroclysta siterata* Hufn., suggests colonisation from north-east Surrey rather than the Kentish Weald.– B.K. West, 36 Briar Road, Dartford, Kent DA5 2HN.

Figure 1. *Argynnis aglaja* L. ab. *wimani* Holmgren. Upperside of male, Ireland, July 1998. Photographed by Rupert Barrington.

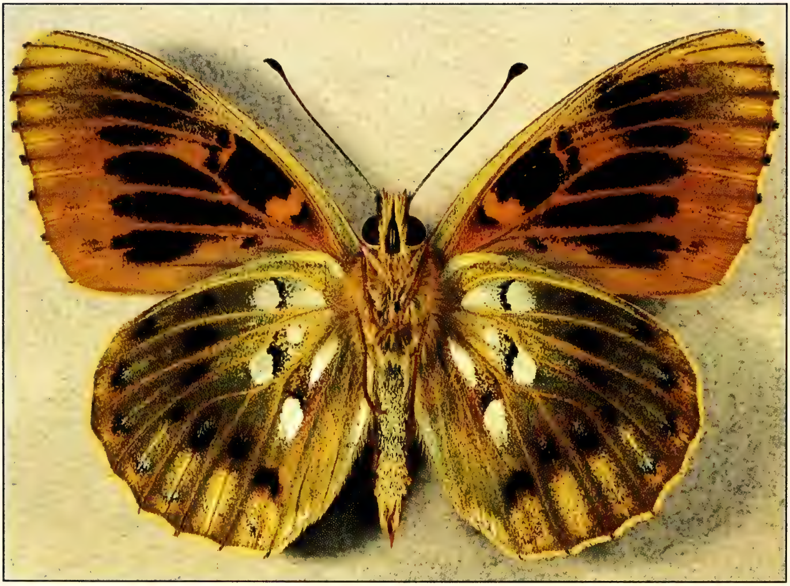

Figure 2. *Argynnis aglaja* L. ab. *wimani* Holmgren. Underside of male, Ireland, July 1998. Photographed by Rupert Barrington.

This colour plate was kindly sponsored by Donald Russwurm.

This colour plate was kindly sponsored by Donald Russwurm.

Figs. 1 - 4. *Melanargia galathea* L. ab. *nigricans* Culot – homozygote aberrations, bred 1999.
Photographed by Rupert Barrington.

1. male, upperside; **2.** female, upperside;
3. male underside; **4.** female underside.

PLATE B

Figs. 1 - 4. *Melanargia galathea* L. ab. *nigricans* Culot – heterozygote aberrations.
Photographed by Rupert Barrington.
1. male, heterozygote, bred F2, 1999 – upperside;
2. male, extreme heterozygote, bred F2, 1999 – upperside;
3. female, bred F1, 1998 – upperside; **4.** female, bred F1, 1998 – underside.

PLATE C

This colour plate was kindly sponsored by Donald Russwurm.

1

2

This colour plate was kindly sponsored by Donald Russwurm.

Figs. 1 - 2. *Marpesia eleuchea* Hb. (Lep.: Nymphalidae)
from Guardalavaca, Cuba, July 1994 (B.K. West). Photographed by David Wilson.

1. Symetrical damage to the tornal area of both hind wings;
2. Apparently asymmetrical damage to hind wing tornal area.

PLATE D

MARPESIA ELEUCHEA HB. (LEP.: NYMPHALIDAE) IN CUBA: ADVANTAGE OF A FALSE HEAD

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DURING JULY 1994, I encountered *Marpesia eleuchea* in considerable numbers at Guardalavaca, Cuba. Although a few specimens were worn and appeared to have been on the wing for a week or more, the vast majority had a bright, fresh appearance and could be viewed from close range while settled, open-winged, upon the small white flowers of a somewhat sprawling wayside shrub which I believe to be a species of *Cordia*; it also produced small, white, edible berries. Over a two week period, some two hundred specimens of *M. eleuchea* were observed, being the commonest butterfly. Of this total, I can not be sure that even one was a perfect specimen, although many appeared so at first glance. Invariably, closer examination revealed damage in the tornal area of the hind wings; in some cases only slight and confined to the tornal lobe or to one or both of the tails, but not infrequently the damage was considerable with the posterior halves of the hind wings missing. Frequently, the hind wing damage was symmetrical, suggesting attack by a predator when the wings were closed, as when the butterfly was resting at night or in dull weather. This symmetrical damage is illustrated in Plate D (Fig. 1) in which the tornal lobe and a small, marginal part of both hind wings is missing. Figure 2 shows a specimen with obvious damage to only the left hind wing, although in fact the right hind wing is fractured in a similar position to the same depth.

During my fourteen day sojourn at Guardalavaca, I saw *M. eleuchea* daily, and despite spending much time observing them not once did I see a specimen attacked by a bird or other predator. Thus, the damage caused to the tornal area of the hind wing gave little indication of actual success by the predator, but circumstantial evidence suggests that it was not great, because:

a There was no evidence of damage at the vital end i.e., the forewing costa;

b the head was well protected by the very wide wings;

c the butterflies were very common in spite of attack.

The geographical range of *M. eleuchea* is limited to Cuba, Hispaniola, Jamaica and the Bahamas, and an occasional specimen has been recorded from the Florida Keys (Smith *et al*, 1994).

I had encountered the species previously when stationed on New Providence Island, Bahamas, in 1945 and 1946; here three specimens were seen and taken, all somewhat worn, but with wings intact, suggesting that the type of predation occurring in Cuba did not occur on New Providence Island, which has a much more restricted fauna.

At Guardalavaca, two other sizeable species of butterfly imbibed at the ?*Cordia* flowers. *Marpesia Chiron* Fabr. is a darker, less robust insect than *M. eleuchea*; the few specimens seen were in perfect condition. *Protesilaus celadon* Lucas, an endemic sword-tail was another species usually seen at the white-flowered shrub,

almost always in very good condition and, if not, only slightly worn. Thus, it seems that the predation was distinctly specific, a very real threat which left its mark on virtually every member of the population, yet was unsuccessful on so many occasions.

Considering the prey, the subterfuge of apparently replicating the appearance of head and antennae at the rear end of the butterfly was proving remarkably successful in distracting the predator from attacking the vital part, yet inviting attack in possessing so realistic a resemblance to the insect's vital parts in the tornal area.

In South America I have met with three other *Marpesia* species: *M. petreus* Cram., a more delicate insect than *M. eleuchea*, with extraordinarily long, narrow hind wing tails and prominent tornal lobes and with which *M. eleuchea* was long confused; the almost black *M. coresia* Godt.; and the orange-brown *M. berania* Haw.. Only occasional specimens were encountered, and always imbibing at damp patches on roads or beside streams. Almost all have been in good condition, emphasising the specific and local nature of the damaged condition of *M. eleuchea* at Guardalavaca in Cuba during 1994.

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The Purple Hairstreak *Quercusia quercus* L. (Lep.: Lycaenidae): first modern record for Oxleas Wood SSSI, Shooters Hill, south-east London

Burton (1992, *London Nat.* **71**: 100) notes this butterfly as "reported to have been abundant in 1858 and 1859 in Shooters Hill Wood . . . apparently not seen since. Fenn (1895) considered it extinct".

I am pleased, therefore, to be able to state that the Purple Hairstreak does indeed survive in the locality, thus showing Fenn's judgement cited above to have been premature. In view of recent finds in the London area I became convinced that the species must still be present in Oxleas Wood. On a visit there, 7 July 1999, I was most agreeably surprised to sweep a female example from herbage more or less under an oak in a ride, which, while lively enough, had all four wings badly crumpled – they must have failed to expand properly – and could not fly. This unlucky circumstance, no doubt, had its fortunate side; for otherwise the butterfly would almost surely never have come to my notice!

As one would expect, little has been seen of this rather elusive insect in Greenwich Borough, above all in the north of the area. In any case a lapse of 140 years without a sighting there, if really a fact, seems remarkable.– A. A. Allen, 49 Montcalm Road, Charlton, London SE7 8QG.

THE IDENTITY OF *MYRMECOPORA BREVIPES* BUTLER (COL.: STAPHYLINIDAE)

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MYRMECOPORA BREVIPES was brought forward as a species new to science by Butler (1909). In describing the beetle, Butler compared features of his species with those of *M. uvida* Erichson. He noted that his species was a little shorter than *uvida* (i.e. intermediate in length between *uvida* and *sulcata* Kiesenwetter) with the "thorax distinctly broader than long". Butler wrote that, besides the specimens he himself had collected, he had seen specimens of his species taken by Mr de la Garde at Dawlish, Devon.

Assing (1997), in his revision of Western Palaearctic species of *Myrmecopora* reported that he had been unable to locate a syntype of the species collected by Butler himself in spite of extensive enquiries. Reasoning that de la Garde's specimens from Dawlish were syntypes, Assing chose one of them from the collection held at Exeter City Museum and Art Gallery as a lectotype for Butler's species. A possible flaw in Assing's reasoning might have arisen if de la Garde had collected more than one *Myrmecopora* species of intermediate size at Dawlish. This, however, seems unlikely for Mr D. Bolton of Exeter City Museum has, at my request, kindly examined the relevant specimens in the Museum's collection and found that apart from an indeterminate damaged specimen, the other eleven match Assing's lectotype.

Looking at a number of *Myrmecopora* specimens of intermediate size collected by the author from Steephill, Isle of Wight and various other sites on the south coast, Assing realised that these were not the same species as de la Garde's specimens. Among other differences, the pronotum was not significantly broader than long. Assing named the second species *oweni*. A full description of both species and the means of distinguishing them is given in his paper. A simplified key covering only those species so far recorded from the British Isles is given below.

Preliminary studies indicate that *oweni* is widespread and locally common along the south-western and southern coasts of England whereas *brevipes* is much rarer and apparently confined to the south coast of Devon. The separation of *brevipes* from *oweni* by Assing means that most British specimens hitherto labelled *M. brevipes* will have to be relabelled but at least Assing's *brevipes* is consistent with the brief description which Butler provided for his species whereas *oweni* is not.

Acknowledgements

I must thank Herr V. Assing and Mr P.M. Hammond for their helpful comments. Mr D.E. Bolton, Exeter City Museum and Art Gallery kindly made available an opportunity of examining specimens in his care for which I am most grateful.

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Apendix 1

Simplified key to *Myrmecopora* species recorded from the British Isles.

1. joints 4 and 5 of antennae clearly elongate 2

   joints 4 and 5 of antennae more or less quadrate 3

2. length 2.4 – 3.4 mm*. pubescence on the inner two thirds of the elytra clearly transverse .... *oweni* Assing

   length 2.9 – 3.9 mm. pubescence on the inner two thirds of the elytra mostly oblique .... *uvida* Erichson

3. length 2.2 – 3.5 mm. pronotum clearly broader than long; head strongly transverse and strongly punctured .... *brevipes* Butler

   length 2.1 – 2.9 mm pronotum longer than broad; head weakly transverse and weakly punctured .... *simillima* (Wollaston) (= *sulcata* auct. Brit.)

* Measurements of length are those given by Assing (1997).

The Triangle *Heterogenea asella* (D.& S.) (Lep:Limacodidae) re-found in Devon

On 26 June 1999, in the woodlands near Great Torrington, during a joint field trip of the Devon Moth Group and the British Entomological and Natural History Society which hoped to discover the extent of the distribution of the Scarce Merveille-du-Jour *Moma alpium* (Osbeck), Dr B.P. Henwood took a small moth from the trap of B. Deakins, with his permission. The next day, Dr Henwood identified this specimen as The Triangle *Heterogenea asella*, but as he had never seen the species before he brought it round to me for confirmation. Dr. A. Henderson from Bideford, took a further specimen to light in his part of the woodland on 9 July 1999. The moth is recorded in the *Victoria County History of Devon* (1906) at Bickleigh Vale, near Plymouth by J. Baseden-Smith and at Plymbridge by F.J. Briggs, with no dates of capture. S.T. Stidston (1952) in his list of "The Lepidoptera of Devon" repeats these records adding that the species is "very rare, the only known records".– R.F. McCormick, 36 Paradise Road, Teignmouth, Devon TQ14 8NR.

THE STATUS OF *FORMICA LUGUBRIS* ZETT. AND *FORMICA AQUILONIA* YARROW (HYM: FORMICIDAE) IN ROSS-SHIRE AND SUTHERLAND

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THE HOLARCTIC GENUS *Formica* contains the familiar wood ants which are a conspicuous feature of many British woodlands ranging from small fragments of deciduous woodland in the far south of Britain to the large, sprawling plantations of the Scottish Highlands. No wood ants have been recorded from Caithness, Orkney, or Shetland and it can be assumed that the colonies in Sutherland are the northern most in Britain. Of the five species found in the British Isles (*Formica rufa, F. lugubris, F. aquilonia, F. exsecta* and *F. pratensis*) only two, *F. aquilonia* and *F. lugubris*, are widespread in Scotland (Yarrow, 1955). It is generally thought that *F. rufa* and *F. pratensis* could not tolerate the harsher northern climate and would soon be out-competed their more hardy relatives. The endangered *Red Data Book* species *F. exsecta* has its population stronghold in the forests of Speyside and recently a few nests have been re-discovered at Rannoch and near Braemar (Hughes, 1997, Hoare *et al,* 1996, Yarrow, 1954, Collingwood, Hughes & Hoy, pers. obs., 1998).

Interest in the conservation of wood ants in Britain is a relatively recent development and is linked to the more general concern for the loss and decline of natural and semi-natural woodland and forests. The presence of wood ants within a woodland often indicates good quality habitat in that ants will only thrive in relatively undisturbed woodlands with a diverse age and vegetation structure. Changes in wood ant populations in Scotland have largely gone unnoticed due to lack of baseline data on the main populations. The situation is similar in England and Wales (see Fowles, 1994) with very little published material on the status of wood ants and only few detailed records for regional populations (e.g. Hughes, 1975 for North Wales & Barrett, 1968 for England and Wales). In order to fulfil the objectives for the conservation of wood ants in Scotland as laid out in *Biodiversity Challenge: an agenda for conservation in the UK* (Wynne *et al*, 1995) it is crucial to ascertain the extent and health of existing wood ant populations.

Fowles (1994) rightly points out that to lose wood ant colonies would be to lose an important and interesting aspect of woodland ecology. Wood ants affect the composition of woodland invertebrate communities and drive the dynamics of the woodland ecosystem in ways which are only beginning to be understood.

The purpose of this research was threefold:

i) to summarise detailed information collected on the status of wood ants in a specified region,

ii) to begin to develop a simple methodology for surveying wood ants at a regional level,

iii) to help stimulate interest in wood ant conservation within voluntary and statutory conservation bodies.

Survey Methodology

Over the period 1993-1997, most of the woodlands of Ross-shire and Sutherland were visited and checked for the presence of wood ants – this includes those sites where records already existed (see particularly Collingwood, 1959). Coverage was not comprehensive but I estimate that around 70% of woodlands were surveyed and over 80% of natural/semi-natural woodlands checked. Survey concentrated on those woodlands with the greatest potential for supporting a population, particularly old birchwoods off the beaten track. Many sites were suggestions from local people, gamekeepers, landowners, etc. and, where practicable, permission to visit sites was requested. There are still many isolated sites which are yet to be visited: Loch Urigill (grid reference NC 2309), Na Leitrichean (NC 1912), and Gleann Dubh (NC 2733, 2932) are but three examples, and ants may well have been missed in some of the larger plantations.

For each site with ants, a proforma was completed giving information on site attributes. All the site information was then entered into a database to be updated as necessary.

The distribution and ecology of wood ants in northern Scotland

Past and Present Status

F. *aquilonia* is listed by the International Union for the Conservation of Nature and Natural Resources (IUCN) as vulnerable and is classified as Notable B in the UK *Red Data Books,* (Shirt, 1987) i.e. estimated to occur in 31 to 100 modern ten-kilometre grid squares. In Britain, *F. aquilonia* is restricted to the central, northern and western Scottish Highlands, north of a line approximately level with the Firth of Forth. It has only been recorded from one island, Skye (Hughes and Collingwood, pers. obs., 1988) and reaches as far north as Inverpolly National Nature Reserve in Assynt. Rather misleadingly, the cluster of nine dots in East and West Ross on the 1979 distribution atlas (Barrett, 1979) suggests a thriving population in that area. Whilst checking these records as part of this survey it was evident that many of the 10km square dots represented very small populations, barely surviving in small fragments of, usually birch, woodland. In some cases only a handful of nests were present. These colonies represent relict populations which once thrived in the formerly extensive northern Scots pine forests. The few fragments of woodland that survive are often located in inaccessible, rocky, or remote areas where exploitation of the trees for timber would have been prohibitively costly. During the course of the survey it became evident that secondary growth of birch did not support any wood ants and colonies appeared to be surviving only where there has been continuous woodland cover for many centuries.

F. lugubris is listed by the IUCN as vulnerable, but is not currently included in the UK *Red Data Books.* It occurs across many parts of the British Isles but is absent over most of southern England where it replaced by *F. rufa*. It has its strongholds in North Wales, Cumbria, Northumberland, Speyside, Braemar, and the plantations on

the Moray coast. North of the Great Glen it is less common and is usually found with *F. aquilonia* in or near plantation forestry (as at Longart Forest near Garve). The three 10km squares in the 1979 atlas (Barrett, 1979) are those listed in Yarrow (1955) as Corrie Valighan, Garve, and Inchbrae. This survey found *F. lugubris* to be more common that old records suggest, yet not as widespread as *F. aquilonia* in the north (Maps 1 and 2).

Formica lugubris

Map 1.
Distribution records of *Formica lugubris* Zett. during the present survey.

Formica aquilonia

Map 2.
Distribution records of *Formica aquilonia* Yarrow during the present survey.

Wood ant habitat in Ross-shire and Sutherland

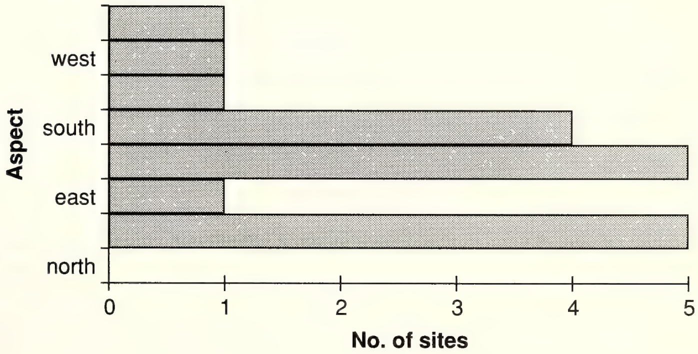
Woodlands with a range of microhabitats, i.e. those which display a variability in openness of canopy, successional age, moisture, food supply, and soil type, tend to alleviate the effects of competition (and also slave-making) and enhance the coexistence of interacting ant species (Puntilla, Haila & Tukia, 1996). In Scotland, the woodlands which support the largest populations, and greatest diversity of wood ant species are generally those large enough to hold a broad range of successional woodland types. To support the full range of wood ant species, a woodland needs to

grade from near open heath with scattered trees (*F. exsecta*), through mature open-dense woodland (*F. lugubris, F. aquilonia*), containing sunny, protected glades with uneven topography (*F. sanguinea*). These conditions are only commonly found in and around Abernethy and Glenmore Forests, and the Rothiemurchus Estate on Speyside, and possibly in some other remnant Caledonian pine forests such as Glen Affric.

In Ross-shire and Sutherland there are few fragments of natural/semi-natural forest remaining and the wood ant colonies are generally small and isolated. In northern Scotland the distribution and structure of wood ant communities appears not to reflect microhabitat preferences as it does in Scandinavia (Puntilla, 1996., Putilla, Haila, & Tukia, 1996) and elsewhere in Britain (Hughes, 1975) but, quite simply, the presence or absence of relict birch, and to a lesser extent Scots pine, woodland. These islands of woodland are not large enough to support a number of competing species in equilibrium and usually only contain one wood ant species.

These wood ant species, particularly *F. lugubris*, are thought to have preferences for well drained, protected sites with a high degree of isolation, necessary for maintaining nest temperature for brood development. South-facing aspects are thought to be favoured as are well-drained, lower-lying sites. In the north of Scotland, one would expect ants to maximise potential sunshine levels by colonising south facing slopes, but this is not always the case (see Fig. 1). Of the 18 sites studied only 10 were south, south-east and south-west facing. However, eleven had a predominantly easterly aspect, suggesting solaria may require morning sunshine to raise nest temperatures towards the +20°C required for normal colony functioning (Brian, 1977). The four sites for *F. lugubris* were all south or easterly facing. Until more information can be collected, the data set remains too small to merit statistical analysis.

Figure 1. Aspect of Scottish nests of *Formica lugubris* and *F. aquilonia*.



Wood ants occur at a wide range of altitudes from near sea-level at Loch Oscaig to 300m at Gleann Mor in the Amat complex (see Table 1). This again, almost certainly reflects the rarity of old woodland rather than any habitat preference by the ants. If this part of Scotland was covered in continuous forest we might expect larger, more thriving populations in the low-lying areas.

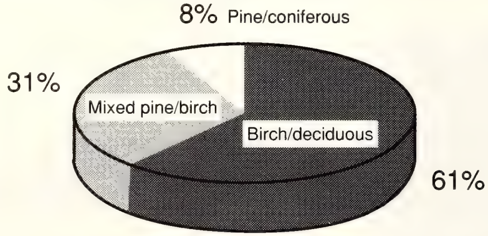
Table 1. Altitude of Scottish wood ant nests

Site name	Altitude (metres)	Site name	Altitude (metres)
Amat	150	Kildermorie	250
Calrossie	40	Ledmore	130
Cul Mor	145	Loch Oscaig	15
Drumrunie	175	Longart	150
Garbat	200	Migdale	60
Glean Mor	300	Rhegreanoch	30
Glen Einig	150	Rhiddoroch	100
Glen Stathfarrar	150	Sallachy	100
Inveran	70	Strath Vaitch	270

average 138 **standard deviation 81.2** **median 147.5**

Figure 2 shows, very broadly, the types of woodland which support wood ant populations in the north of Scotland (individual woodland descriptions are given more fully in the proforma for each site, but not given here due to space limitations). Interestingly, 61% of the woodlands containing ants are almost purely deciduous (*Betula pubescens* dominated) with only 8% coniferous. This no doubt reflects the almost complete destruction of native Caledonian pine forest in this area rather than any preference for birch by the ants. Indeed, where a few ancient Scots pine have survived with birch (e.g. at Gleann Mor & Glen Einig), the wood ants tend to build larger, more productive mounds.

Figure 2.
Percentage of different types of woodland supporting nests of wood ants in northern Scotland.



The presence of wood ants in these "islands" of woodland suggests that at least *F. aquilonia* has extreme long term site fidelity, as many of the fragments have been isolated for decades, or possibly centuries. Colonies may well have shifted around within these woodlands but successive re-colonisations would have been near impossible given the degree of isolation of many of the woodlands. There are exceptions, as at Longart Forest where ants have survived within "corridors" of birch woodland along stream banks and then spread into nearby conifer plantations. The presence of aphids (particularly *Symdobius oblongus*) in these birch fragments appears to be one of the key factors determining the survival and health of colonies. The mutualistic relationship they have with the ants (honeydew provision/protection)

provides the colony with well over half its energy requirements. *Symdobius oblongus* with ants in attendance was recorded at many sites and it was noted that in those birch woodlands without *S. oblongus*, wood ants were also absent. More research is needed to assess the importance of this relationship.

Discussion and outlook

Assuming that the wood ant communities in many of these isolated birch woodlands have been a natural component of the woodland ecosystem for many centuries, the woodland invertebrate (and possibly vertebrate) communities would have been subject to profound influences from the ants. If the presence of these wood ants is an indicator of truly ancient woodland invertebrate communities, it follows that the whole ecology of these woodlands is of considerable conservation importance. Most of West Ross and Sutherland is now treeless, making the surviving fragments very important, particularly sites unique in character like the birch-hazel woodlands of northern Inverpolly. The nature conservation importance of these woodland fragments is recognised by statutory and non-statutory conservation bodies, the presence of wood ants provides a further testimony to their unique and ancient lineage.

Acknowledgements

I am indebted to Dr C.A. Collingwood, with whom I carried out much of the field work for this paper.

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Hazards of butterfly collecting – Fax for you, Sir – Korup, Cameroun, February 1996

We were camping at a small research station in Korup National Park in Cameroun, some twenty kilometres from the park entry. Today we had trekked an extra ten kilometres to Rengo Rock, a big round rocky outcrop that suddenly juts out of the rainforest. I had real hopes of good hilltopping here, but the descriptions had been better that reality. The tops of some surrounding trees were taller than the summit, so no hill-topping on the – otherwise wonderful – rock. Triste – but not a major issue; butterflies were everywhere. As indeed they should be, for Korup National Park (and the contiguous Oban Hills in Nigeria) has about 1,100 species of of butterflies – about a third of all species in continental Africa. This really is biodiversity writ large.

A good day in Korup may well yield about 170 species of butterflies, including firm sight records. That is pretty good, though my personal record in a 24-hour period was actually 225 species in the Gambari Forest near Ibadan in Nigeria on a day where everything was perfect (August 1969) – weather wonderful, traps pulling in almost anything trappable, a fantastic grid of paths, plenty of the *Crematogaster* ants on which the Lipteninae depend, and a finely honed and toned collector. Just after noon at Rengo Rock a profusely perspiring ranger exited from the forest and ran up to me, saluting extravagantly: "Fax for you, Sir!" – and a fax was duly produced. It came out of a uniform pocket – it ought to have come from a cleft stick. In Evelyn Waugh's novel, Scoop, the hero (or anti-hero if you prefer) asked his tropical outfitters for some cleft sticks: "I am sorry, Sir," said the shop assistant brightly, "we don't have them in stock. But we can send some sticks down to our cleaver to have them cloven".

The fax was from the World Banks Washington Headquarters. I had planned to participate on behalf of the European Commission in the World Bank-led Donor Consortium for health and population – a small matter of about a billion dollars over five years, of which it was hoped the Commission would cough up some 100 million. The fax informed me the meeting was going to start a week earlier than planned.

I started counting backwards .... I had to get a Bangladesh visa in London, so I would need to leave Douala four days from now. I had to send the poor ranger back immediately to Headquarters to ensure that we could have porters the next morning to carry out our gear. Poor chap – more than sixty kilometres that day, without the

benefit of World Bank remuneration (I still wonder what the World Bank compensation for 60 km of rough walking might be, but I never found a Bank staffer who could even begin to visualise it!).

Early next morning we raced back to Park Headquarters, with the porters following. An interim report was written. A quick debriefing was held. Transport to Douala was arranged. A very hasty good-bye party wished me the best of luck – direct trips from Korup to Dhaka are rare events indeed. Wednesday evening a booking on Air France was made in Douala for that same night, Thursday morning on the way home from Heathrow the visa application was dropped off at the Bangladesh High Commission, Friday afternoon the passport was retrieved on the way back to Heathrow, and Saturday I was in Dhaka.

"Oh good, you're here", said the World Bank Resident Representative the next morning, "I hope the change in schedule was not too disruptive". I would save my comments on that one for later.

I did lose six days in the field, and what a shame that was. But I did also collect about 500 species of butterflies. There has been some previous work in Korup, and lots of work in the Oban Hills. About 900 species have been recorded in all; another 200 have been found in close proximity in both Nigeria and Cameroun. The estimate of 1,100 species is both a safe and conservative one. This means more species in Korup/Oban Hills than in all of the Malay Peninsula (just over 1,000 species) or in the Philippine Archipelago (900 species), where I currently live.

Korup and the Oban Hills are among the most important conservation areas in Africa, indeed in the world. They are truly exceptional, wondrous places – conserving also the gorilla, the chimpanzee, and the drill. So let us make this *Hazard* interactive. Do write a letter extolling the virtues of these two contiguous parks to the respective High Commissioners:

His Excellency,
The High Commissioner of Cameroun,
84 Holland Park, London W11

His Excellency,
The High Commissioner of Nigeria,
9 Northumberland Av., London WC2

Key words:

* You are the custodians of Africa's most outstanding biodiversity, which is the heritage not just of Africa, but of the entire world.
* Please convey our best wishes to your conservation authorities for what they have achieved.
* Africa often gets a bad press; the conservation of Korup and the Oban Hills will lead to a good press.
* Future generations will be proud of the efforts being made today to conserve Korup and the Oban Hills.
* Let us go into the new millennium with the hope that the National Parks of Korup and the Oban Hills will foil the predictions that extinction of organisms is going to be rampant.

– TORBEN B. LARSEN, 5 Wilson Compound, 2811 Park Avenue, Pasay City, Metro-Manila, The Phillipines.

Third update of early emergences of moths at Selborne

This table continues the comparison (*antea*: 220) between my earliest observations of non-hibernatory species in 1992-94 with those in 1995-1997. The m.v. light was run here on just over 320 nights during each year of the survey. Of these next 42 species, 33 arrived earlier in 1995-97 than in 1992-94. One species shared the same earliest date in both periods. Eight species were up to a month earlier than is usually expected.

Species	1995-1997	1992-1994	*MBGBI* imago
2061 *Spilosoma lutea* (Hufn.)	24 Mar 97	25 Apr 93	May-Jul
150 *Adela reaumurella* (Linn.)	20 Apr 97	16 May 92	May/Jun
1853 *Eupithecia dodoneata* (Guen.)	20 Apr 97	26 Apr 94	Apr-Jun
1776 *Colostygia pectinataria* (Knoch)	29 Apr 97	30 Apr 93	May-Sep
1883 *Acasis viretata* (Hb.)	29 Apr 97	19 May 94	May, Jun
1920 *Odontopera bidentata* (Cl.)	30 Apr 95	11 May 93, 94	May, Jun
1769 *Thera britannica* (Turn.)	1 May 95	20 May 94	May-Jul
2102 *Ochropleura plecta* (Linn.)	2 May 95	9 May 94	Apr-Jun
2160 *Lacanobia oleracea* (Linn.)	2 May 95	15 May 94	May-Jul
2492 *Herminia grisealis* (D.&S.)	2 May 97	14 Jun 94	Jun-Aug
2003 *Notodonta ziczac* (Linn.)	3 May 95	5 May 95	May, Jun
1722 *Xanthorhoe designata* (Hufn.)	4 May 97	17 May 92	May, Jun
1738 *Epirrhoe alternata alternata* (Mull.)	4 May 95	22 May 93	May, Jun
1902 *Petrophora chlorosata* (Scop.)	4 May 95	30 Apr 93	May, Jun
2380 *Charanyca trigrammica* (Hufn.)	4 May 95, 97	16 May 94	May-Jul
1174 *Epiblema cynosbatella* (Linn.)	6 May 95	19 May 94	May-Jul
1957 *Lomographa bimaculata* (Fabr.)	6 May 95	29 Apr 94	May, Jun
1999 *Stauropus fagi* (Linn.)	6 May 95	10 May 94	May-Jul
2214 *Cucullia chamomillae* (D.&S.)	6 May 96	18 Apr 1994	Apr-Jun
247 *Tinea trinotella* (Thunb.)	7 May 95	23 May 93	Apr-Jul
925 *Phtheochroa rugosana* (Hb.)	7 May 95	20 May 94	May-Jul

Species	1995-1997	1992-1994	*MBGBI* imago
1076 *Celypha lacunana* (D.&S.)	7 May 95	22 May 93	May-Aug
1728 *Xanthorhoe fluctuata fluctuata* (Linn.)	7 May 95	1 May 94	Apr-Sep
1887 *Lomaspilis marginata* (Linn.)	7 May 95	13 May 93	Jun, Jul
1979 *Mimas tiliae* (Linn.)	7 May 95	25 May 93	May, Jun
2281 *Acronicta alni* (Linn.)	7 May 95	8 Jun 93	May, Jun
1846 *Eupithecia nanata angusta* (Prout)	8 May 95	11 May 94	Apr-Jun
1981 *Laothoe populi* (Linn.)	8 May 95	5 May 94	May, Jun
2089 *Agrotis exclamationis* (Linn.)	8 May 95	13 May 93	May-Jul
2147 *Hada plebeja* (Linn.)	8 May 95	5 May 94	May-Jul
1011 *Pseudargyrotoza conwagana* (Fabr.)	10 May 97	9 Jun 93	May-Sep
2221 *Shargacucullia verbasci* (Linn.)	10 May 95	6 May 93	Apr, May
2450 *Abrostola tripartita* (Hufn.)	10 May 95, 97	24 May 93	May-Jul
1904 *Plagodis dolabraria* (Linn.)	11 May 95	23 May 93	May, Jun
2014 *Drymonia dodonaea* (D.&S.)	11 May 97	10 May 94	May, Jun
465 *Plutella porrectella* (Linn.)	12 May 97	19 May 92	May-Jul
17 *Hepialus lupulinus* (Linn.)	13 May 97	23 May 94	May-Jul
1356 *Evergestis forficalis* (Linn.)	13 May 97	17 May 93	May-Oct
1727 *Xanthorhoe montanata montanata* (D.&S.)	13 May 95 ,97	13 May 93	May-Jul
1752 *Cosmorhoe ocellata* (Linn.)	13 May 97	22 May 92	May, Jun
1813 *Eupithecia haworthiata* (Doubl.)	13 May 97	9 Jun 94	Jun, Jul
1773 *Electrophaes corylata* (Thunb.)	15 May 97	26 May 93	May, Jun

– ALASDAIR ASTON, Wake's Cottage, Selborne, Hampshire GU34 3JH.

Hypochalcia ahenella (D.& S.) (Lep.: Pyralidae) found again in Hertfordshire

On the night of 18 June 1999, an unfamiliar pyrale appeared at one of my m.v. lamps, which Charles Watson and myself were operating on the tenth green of the golf course at Therfield Heath, near Royston in Hertfordshire. Closer examination revealed it to be a male *Hypochalcia ahenella*, which Heslop (1964. *Revised indexed check-list of the British Lepidoptera*) refers to as the Dingy Knot-horn.

According to the database maintained by Tony Davis, as Coordinator of the national Pyralid Recording Scheme, the only previous record for *H. ahenella* in Hertfordshire appears to be that made by the late Professor Colin Smith — "Royston, TL 3440, 20 July 1969". I am grateful to Tony for this information (and I will take this opportunity to remind readers to send him their pyralid records annually). The tenth green at Therfield lies in grid square TL 3339, and so is within a short distance of Smith's earlier record, which was clearly from the eastern half of Therfield Heath.

In spite of its name, Therfield Heath is, in fact, a chalk grassland site, where the Chalk Hill Blue butterfly *Lysandra coridon* (Poda) continues to thrive, and some 50 metres or so from the trap site is a very small former chalk quarry, where the vegetation is sparse and there are many loose chalk stones. Thus the known habitat of "… dry, stony ground with sparse vegetation: chalk downs, railway banks, quarries …" given in Goater (1986. *British pyralid moths*. Harley Books) is not at all contradicted.

The moth-trapping carried out on Therfield Heath forms a part of an ecological assessment commissioned by the Conservators of Therfield Heath and Greens, to whom I am most grateful.– COLIN W. PLANT, 14 West Road, Bishops Stortford, Hertfordshire CM23 3QP.

Mercury Vapourers

Colin Plant's interesting note (*antea*: 198) raises various questions, on which one can but speculate. Perhaps it is sheer coincidence that this is the first year for a long time that I have had male Vapourers in my trap: 18 and 30 July 1999, but one only on each night (previous to that there had been one in the 1960s). On the other hand it does seem just possible that *Orgyia antiqua* is having a better season than usual in these relatively lean times, and if so, I suppose such an upturn might possibly affect a very large area in which much of France could be included(?). However, I have not yet seen males in diurnal flight this year; nor, for that matter, for a long time past, the Vapourer like so many insects having become far less frequent that formerly hereabouts. I will just mention the Buff Ermine *Spilosoma lutea* Hufn., which seems to have died out here; while the White Ermine *S. lubricipeda* L., though less common than formerly, is still to be found.– A. A. ALLEN, 49 Montcalm Road, Charlton, London SE7 8QG.

Catoptria falsella (D.& S.) (Lep.: Pyralidae) in south-east London

When leaving Woolwich Common, near here, on 11 July 1999, I noticed a smallish pale-looking moth rise up from undergrowth beside the path and vanish into bushes above. Luckily it had settled on a twig and I was able to secure it, when it turned out to be a species of what many of us had long known as *Crambus*, but unfamiliar. Its distinctive markings made its later identification as *Catoptria falsella* a simple matter. The species is far from common and it seems unlikely that there is a previous record for the district. On a later occasion I returned to the spot to search for a possible breeding site, which is said to be old walls with mosses on which the larva feeds. No trace of any such could be found, however: behind the row of bushes alongside the path, where the moth occurred, is only a large car park.– A. A. ALLEN, 49 Montcalm Road, Charlton, London SE7 8QG.

A note on the possible second brood of the Meadow Brown _Maniola jurtina_ L. (Lep.: Nymphalidae) in south-east London

It seems that the voltinism of this very familiar insect is not entirely clear (see Plant, 1987, *The Butterflies of the London Area*: 139). Perhaps, therefore, it will be worth noting what appears to be the case in my district, where *jurtina* abounds on Woolwich Common in particular.

In early autumn, at the very end of the protracted main brood when almost only some worn females persist, I have several times noticed odd specimens, rather small and dark, not appreciably worn, and seemingly always male. This might appear to point decidedly to a fragmentary (probably sterile) second brood resulting from some of the earliest butterflies of the main brood. At least, that would explain these occasional late males, though in no way settling the question. It may well be that the situation is not uniform over the whole country.– A. A. ALLEN, 49 Montcalm Road, Charlton, London SE7 8QG.

A record of _Crombrugghia laetus_ (Zeller) (Lep.: Pterophoridae) new to West Sussex

Whilst looking through John Radford's collection earlier this year, he pointed out a plume-moth which he had caught in his garden mercury vapour trap at Walberton, West Sussex on 24.vi.1998 and could not identify, but which he thought could be *Crombrugghia laetus*. The insect certainly looked like this species, but to be certain I took the specimen away and made a slide of the genitalia. The slide confirmed that the specimen is *laetus*. Both the moth and the slide have been returned to John Radford.

This is only the twelfth record of this moth in the UK (see Hart, 1996. *Ent. Rec.* **108:** 113-117 for a review of known records and notes on its separation from *C. distans* (Zeller, 1847)). It is worth noting that all the records except one have been from within thirty miles of the south coast of England. This insect is easily overlooked and I would ask all entomologists operating in the south to look out for small, brownish-orange plume-moths, and to send the details (and the specimen if

you are in any doubt) to me or to Tony Davies of the Pyrale and Plume Recording Scheme. I would like to thank John and Rosemary Radford for their hospitality and for allowing me to look through their collection.– COLIN HART, Fourpenny Cottage, Dungates Lane, Buckland, Betchworth, Surrey RH3 7BD.

PRODUCT REVIEW

The new Honda EU10i generator

Any field worker will know the problems of transporting a reliable, heavy generator over rough terrain for moth trapping. The Honda EX1000 and EX650 both weigh over 20 Kg even when dry. They are relatively noisy and the EX650 will only run for approximately four hours, depending on load, before having to top up with petrol. The EX1000 is slightly better, running for up to seven hours depending on load. I was pleasantly surprised when our Honda dealer told us that the EX1000 was to be discontinued, to be replaced with the EU10i. Delivering 1000 watts and only weighing 13.5 kg, it has a noise level of 52Db, opposed to 88dB from the EX1000. It has a tank capacity of 2.3 litres, 0.8 litres less than the EX1000, which means that it will run for a quoted 8.3 hours, compared to the EX1000's quoted 4.7 hours.

What did it really mean in field tests? I received the EU10i to test against my EX1000. Initial problems with the oil level not being correct were soon overcome and tests were carried out at a local site which I visit regularly. The considerable weight difference was incredible – the EX1000 has to be transported via a wheelbarrow and any rough terrain makes this impossible, but with the EU10i I was able to carry it from A to B, full with fuel, no problem. The noise difference was also noticeable. I would not say it was so quiet that you could hear hawk moths come in, but I could hear the local Nightjars churring over the noise! Running time was a little disappointing. I regularly get six hours out of my EX1000 when running two 125watt m.v. traps, with a 100 metre cable on one and a 50 metre cable on the other and I was hoping for a little more than the promised 8.3 hours. With the same apparatus run over a series of nights with the EU10i I was getting a continuous eight to eight and a half-hours without refuelling. This is quite a respectable time, as many of us leave traps over night to return at dawn (padlocked generator of course). In summer months at least, the traps could be run all night without running out of fuel before day-break.

Price wise, the EU10i costs £650.00, only £52.00 more than the "old" EX1000.– JON CLIFTON, Anglian Lepidopterist Supplies, PO Box 232, Northwich Delivery Office, CW8 3FG.

EDITORIAL NOTE: I would be interested to publish other product reports from subscribers, as long as the information presented is impartial and likely to be of use to other readers. I should point out that, in this instance, although Jon Clifton sells the Honda EU10i generator he also sells several other brands and his unbiased report published here was produced at my own request.

BOOK REVIEWS

The Western Palaearctic Zygaenidae by **C.M. Naumann, G.M. Tarman & W.G. Tremewan**. With a foreword by Miriam Rothschild. 304 pp., 12 colour plates, 177 line drawings and black and white photographs. Hardbound ISBN 87 88757 15 3. Published by Apollo Books 1999. (available from Apollo Books at Kirkeby Sand 19, DK-5771 Stenstrup, Denmark for 600 Danish Kroner excluding postage).

This excellent book deals with the Zygaeninae (Burnets), Procridinae (Foresters) and Chalcosiinae (one genus with two species) of the Western Palaearctic. The book is intended as a general introduction to zygaenid biology and provides an overview of species diversity and variation. It consists of two parts, the general part and the systematic part with detailed species accounts. The general part consists of sections on systematics and phylogeny, life cycles, structures and functions, genetics and individual variation, zoogeography, fossil records, ecology and behaviour, zygaenids as indicator species, breeding, collecting techniques, and a note on the history of research on Zygaenidae. A list of vernacular names is provided, including Scottish and Irish Gaelic (my own enquiries indicate that there are no Breton or Cornish words for any of these colourful moths). A selected list of 96 references is provided. This nicely published book on glossy paper is well-written, easy to understand and well worth its price.

Part one is full of fascinating detail, for example that the larval cuticle of the Zygaeninae is thicker than for most other Lepidoptera and may be more than 10 times thicker than for a Noctuid or Geometrid larva. Stereoscan photomicrographs are used to good effect, for example to show the specialised chemoreceptors amongst the numerous sensory hairs on the surface of the antenna and the use of crystallites by the larva to impregnate its silky cocoon. Detailed diagrams are provided of the adult and larval morphology accompanied by comprehensive explanatory accounts; in fact, the account of the function and structure the male and female genitalia is clearly written and a good introduction to the reproductive systems of the ditrysian Lepidoptera.

There is a short section on genetics based mainly on wing coloration and pattern, especially of *Zygaena. trifolii, Z. filipendulae* and *Z. ephialtes*. The hypothesis that suffused confluent forms captured in the wild are temperature forms is dismissed on the basis that the forms produced experimentally under extreme temperatures are phenocopies and not genetically different, whereas suffused confluent forms have been shown to be genetically different by breeding experiments. Confluent forms of *Z. filipendulae* and six-spotted forms of *Z. trifolii* and *Z. lonicerae* are dominant but very rare in the wild, possibly because of reduced fitness. It would have been interesting to have more information about the full range of effects of genetic variation on the phenotype (especially on ecological fitness) rather than just on wing coloration and pattern. More detailed research on genetic variation (especially electrophoresis and population genetic analysis) is obliquely referred to in the section on zoogeography; this section groups species into faunal elements, most of which are centred on Pleistocene refugia where the ancestors of the present species were able to survive the last glaciation.

There is an interesting section on cyanogenesis, including an account of the biosynthesis of cyanoglucosides by larvae feeding on acyanogenic food-plants. There is a detailed account of the reproductive biology, especially of the female sex-pheromones of *Z. trifolii*. Reproductive strategies for Zygaenidae have been shown to be two-fold: in the morning males locate the females by optical cues only, whilst in late afternoon they respond to calling females. We also learn that the chemical structure of the main component of the pheromone in the male scent brushes of *Zygaena trifolii* is derived from a compound found in the nectar of scabious flowers

which are frequently visited by burnets. There are useful hints on breeding the Zygaenidae, including a note about what to do if a larva shows no sign of breaking diapause (immerse for a few moments in a small cup of water with a drop of liquid detergent to reduce surface tension).

Nearly two thirds of the book is devoted to the systematic part, with details of 44 Procridinae, 2 Chalcosiinae and 70 Zygaeninae. A simple key is provided to these subfamilies in the western Palaearctic, based mainly on wing colour and pattern, although for example the Procridinae are separated from the other zygaenid subfamilies mainly by the structure of the female genitalia. Species keys are also provided. The keys to the *Jordanita* and *Adscita* are based mainly on genitalia characters (genitalia are illustrated on 26 black and white plates). The key to the Zygaeninae is based mainly on external features such as presence/absence of a cingulum and wing pattern, shape and colour, but genitalia examination is necessary for some species. Geographical range provides clues as to species identity but is not universally helpful; for example, the note on *Jordanita globulariae* merely states that because it is so variable nearly all species with broad wings can be mistaken for it. Each species is illustrated in set form (often just one illustration even for variable species) and the species accounts include sections on forewing length, male and female morphology, similar species, individual variation, geographical variation, distribution, ecology and behaviour, egg, larva, larval food-plants, pupa and cocoon. Small scale distribution maps are provided for each species. An omission for most species is the timing of the life cycles, e.g., of adult emergence, so that one cannot use this book to help decide the optimum time to visit an area. This may be due to the fact that emergence times are variable for wide-ranging species such as *Z. filipendulae*; timing of the flight period is given for some species with restricted populations, e.g. A*dscita taftana*.

This book is a complete field guide to the Zygaenidae of the western Palaearctic and therefore an indispensable tool for those travelling in this area who wish to identify the burnets and foresters that they encounter. It is also more than this - it is essential reading for anyone interested in moths, especially in their morphology, genetics and ecology. Despite being over 300 pages long, this book leaves me wanting more and is a tribute to the wealth of knowledge concerning the Zygaenidae amassed by the authors over the years.

Adrian Spalding

Jewels in the air: a combined video and booklet guide to British butterflies by **Roger Kemp.** 55-minute video by GKVideo Productions and accompanying 60pp colour booklet, ISBN 0 9534114 1 9, by R K Productions, 1998. Combined pack available from R K Productions, Kemp's Farm, Chapel Road, Ford, Aylesbury, HP17 8XG, price £22.99. Video alone – £14.49; booklet alone £11.49.

This interesting video contains shots of most British butterflies, including all the resident species and several immigrants, although several quite rare immigrants are included at the expense of some that are more likely to be encountered. The filming was originally done with an 8mm cine camera and the resultant film later transferred to video before being edited. Sadly, the editing has failed to provide us with the high quality that we have come to expect from videos these days and there are way too many out of focus shots and far too much camera shake. I also found the presentation by Roger Kemp somewhat "stiff"; I am afraid it reminded me of the way BBC presenters used to appear when television first arrived – fine if you are already interested, but not really designed to be attractive to anyone else.

In order to do proper justice to any publication under review, it is only fair to consider what the target audience might be. My own opinion, as one with more than just a little experience of British butterflies, was less than favourable, but since I am unlikely to belong to the category of people for whom the video is intended I asked my children – aged 14 and 16 – to view it

and tell me what they thought. They both reported that they found it initially interesting, but that they became bored after a while and were only viewing after the full 55 minutes because I had asked them to. They were unhappy with the rather formal approach of "this is a .....", followed by "this is a ....." and then several more "this is a ....". They do say "like father – like son", but I would be surprised if this independently achieved opinion had much to do with their father's views – even if it is identical. The species are, in fact, presented by habitat category – Woodland, Grassland Chalk & limestone grassland, Fen, moor & heathland and finally Gardens & hedgerows, but in each section, the species are trotted out one after the other in an unimaginative manner with little to link the ecologies of each. As my daughter was quick to point out, the text in the booklet is the same as the commentary on the video and the pictures in the booklet are better, all of which tends to render the video surplus to requirements.

However, it is worth pointing out that the content of both video and booklet appears to be accurate, although some species included in one habitat category could just have easily been included in one or more of the others as well. Picking up on points such as this could, with a little more enthusiasm on the part of the narrator, have made the whole thing far more interesting. The booklet contains distribution maps – not on the video. The disproportionately high price of the former makes the complete package more attractive, but I am afraid that I am unlikely to want to watch this video a second time.

Colin W. Plant
with assistance from Edward and Rosemary Plant

Lepidoptera of St Agnes, Isles of Scilly by **Michael E. Hicks and John W. Hale**. 74 pp, numerous Tables of data. A5, folded and stapled. Published by the authors. No ISBN. Available from the authors at Langarth, St Agnes, Isles of Scilly TR22 0PL at £7.50 plus 50p UK postage.

Subtitled *A systematic list and analysis of the species recorded on St Agnes, 1992 - 1997*, this publication provides the reader with a well-presented, highly accurate account of all the species of butterfly and moth, both micro and macro, recorded on St Agnes during the years stated. The book was written to provide readily available answers to the plethora of requests for information which the authors regularly receive from visiting naturalists (mainly birders) and in this task it has excelled. Each species is ranked from Rare, through Scarce, Uncommon and Common, to Abundant, on the basis of the number of records available and it is very pleasing indeed to see that the authors have also included a Table showing trapping frequency in each month of the six years covered so that each status can be put into proper perspective.

For almost all species, a Table shows the date of the first and last record in each of the six years as well as "Maximum number & date" which equates to what is more usually referred to as the "peak period". A few words of free-text are also provided for each species.

Sitting at my desk in the relatively species-rich south-east I was fascinated to see just which species can be found on this small island, to which I have not yet travelled, and to learn something of their status there. The book makes no pretension at being definitive – it presents existing knowledge accurately and concisely in a booklet that can be easily tucked into a rucksack or collecting bag. It should prove indispensable to anyone who visits St Agnes to study or collect moths and falls very easily into my "highly recommended" category.

Colin W. Plant

Microlepidoptera of Europe. Volume 3: Gelechiidae 1 by **P. Huemer and O. Karsholt**. 356pp., 14pp. of colour plates depicting 151 species, 114 pages of monochrome photographs depicting male and female genitalia of all species, 47 text figures. 240 x 170 mm, hardbound, ISBN 87 88757 25 0. Published by Apollo Books, 1999. Available from the publisher at Apollo Books, Kirkeby Sand 19, DK-5771 Stenstrup, Denmark. 500 Danish Krone exclusive of postage (book without packaging weighs approximately 1.3 Kg.).

Anyone who has read any of my earlier reviews of books emanating from Apollo could be forgiven for thinking that this particular publishing house can do no wrong. This latest offering does nothing to alter that impression. This third volume in the *Microlepidoptera of Europe* series covers the Tribes Teleiodini and Gelechiini of the subfamily Gelechiinae and includes 151 species plus one, *Athrips asarinella* (Chrétien), listed under *taxa incertae sedis*. Ten species of the total are described here as new to science; forty-four of those included occur in the British Isles and, very possibly, some that apparently do not could well be found if looked for – something which adds to the importance of the work and makes it immediately attractive to readers of this journal.

As the introduction correctly points out, the Gelechiidae is one of the least known families of micromoths in Europe, and I have no doubt that this applies equally so to Britain. Somewhere, at the back of one of my shelves is a large store-box full of mixed gelechiids (and coleophorids) awaiting that long-overdue rainy day when I intend to sort them out. How far does this new book go to helping me do this?

For each species, a short diagnostic text is accompanied by colour photographs of the adults and black & white photographs of both male and female genitalia. Notes on the distribution and biology of each species follow. The colour plates are of the expected exceptionally high quality and can not be faulted. More than one example of each species is usually depicted, as are both sexes, and this helps considerably in identification. But at the end of the day, the Gelechiidae are not for the faint-hearted, and an examination of the genitalia is almost always a requirement for proper accuracy. It is therefore pleasing to see not only illustrations of the genitalia of all the species in both sexes (including close-up shots of the diagnostic signum of females), but also in the introductory pages some example genitalia with all parts labelled, so that there can be no confusion over which bit is meant by a particular, perhaps unfamiliar, technical term in the keys to genera which is based solely on genital characters. I tried the keys on one example each of male *Aroga*, *Gelechia*, *Myrificarma* and *Teleiodes* specimens, and on females of *Gelechia* and *Teleiodes* and found to my great delight that a correct answer was arrived at in each case. Subsequent reference to the genitalia photographs for each species then gave me an answer that was the same as that on the existing data label and which also corresponded to the correct colour plate. Success – although I did, of course, know already what the answer should be!

Beautifully presented and well bound, this book is in itself a real pleasure to hold and read. It is surely an essential item for the bookshelf of anyone who is seriously interested in identifying micros.

Colin W. Plant

CORRIGENDA

The following corrections to the current volume have been notified to the editor:

Page 4, line 4 from bottom – In the article *More Early Greys* by Raymond Softly the date should be 1990 not 1980.

From the Editor's chair ...

Here we are at the end of my fourth year as your editor. We enter my fifth on a good note – having at last caught up with the backlog of papers, notes and other material awaiting publication. This is particularly good news for authors, who are now guaranteed rapid publication of papers if they care to submit them, always assuming that they are relevant and that they survive the peer review process. The annual reviews of immigrant Lepidoptera have been published up to that covering the year 1996; with luck and a tail wind we ought to fit those for 1997 and 1998 into the coming volume, which means that a year from now we should be reading the review only 18 months after the year ends. This is, realistically, just about as efficient as the authors could possibly get, given the fact that they have to wait for people to send records to them. These reviews stand as the definitive record and it is better to delay a short while and maintain the current high standards of accuracy and completion than to rush into print with a lesser work. The annual review of important microlepidoptera records is complete up to the end of 1998 with this present issue of the journal.

An analysis of the contributions which we published during 1999 is presented below with the 1998 figures in brackets after the 1999 entries:

Subject area	Notes andPapers	Communications	All
British macromoths	9 (10)	22 (25)	31 (35)
British micromoths	2 (4)	19 (29)	21 (33)
British butterflies	6 (2)	12 (13)	18 (15)
Foreign moths	2 (1)	0 (1)	2 (2)
Foreign butterflies	3 (3)	2 (3)	5 (6)
British beetles	5 (4)	12 (12)	17 (16)
British flies	3 (1)	5 (12)	8 (13)
Other orders (British)	6 (2)	2 (12)	8 (14)
Miscellaneous topics	1 (2)	8 (5)	9 (7)
Book reviews	–	–	15 (25)
Subscribers' notices	–	–	10 (–)

But there is a down side – of course. When I had a backlog it was an easy matter to select oldest papers first and send them to the printer. Now I have to think, and make sure that I have enough material to fill the next issue. This is a roundabout way of saying that I would welcome contributions – both full papers and shorter notes. This editor goes out of his way to ensure that contributions from amateurs and professionals are treated alike and judged entirely on content – not the academic career of the author. I find it hard to believe that there is anyone out there who has done so little in the past year that he/she has absolutely nothing to write about. I can only publish what I receive, so if anyone out there is concerned at the decline in British Lepidoptera contributions from 83 to 70 overall, they know what to do

about it! Although electronic manuscripts are preferred because it saves us £3 per page and keeps your subscription down, I am always happy to accept typed scripts or, if there is really no alternative, hand-written notes as long as they are legible.

I have managed to last almost a whole year without uttering **that** word, but now I must break my silence in the interests of science! Although the real one does not, technically, start until 1 January 2001 for pedantic editors, the "millennium" as advertised may have an effect on entomology (all jokes about the millennium bug have already been told to me by my children, thank you). The problem is, of course, the reluctance of some entomologists to recognise that we are in any particular century – let alone millennium. I refer, specifically, to those of you who have been writing "99" on your data labels instead of "1999" and are about to progress to "00" instead of "2000". As an ex-museum biologist, I can point out from experience that the date "00" is pre-occupied and is, therefore, taxonomically invalid for the year 2000. Similarly, "99" as applied to the current year is a mere synonym of 1899 and should be replaced with 1999. The full year should always be written on all data labels so that some poor soul in the year 2050 doesn't get confused whilst rummaging through your old, dusty collection somewhere in a museum basement (if there are any museums left by then!).

Looking to the future, we are pleased to keep the subscription at the same rate, with no increase predicted at the moment. If we get more subscribers the unit cost of each issue falls and so it is everyone's interest to encourage others to take this journal. The renewal notice is sent out with this issue and it contains a section whereby you can take out a gift subscription for a friend if you wish. What better Christmas present than a subscription to the *Entomologist's Record*, I wonder?

During 2000, it is hoped to establish an *Entomologist's Record* Home Page on the Worldwide web. Apart from making us accessible to potential subscribers deep in the recesses of scientific institutions in far flung parts of the world, we should also be able, eventually, to index the journal on the internet so that when you are researching a particular species of insect or other topic you will have rapid access to papers and notes already published. Although I find this quite an exciting prospect, it is well beyond a dinosaur such as yours truly to see it through. I would be very keen to hear from anyone who is sufficiently knowledgeable to help us in this venture (always remembering that we prefer not to spend any money as our only income is from our readers' subscriptions). And talking of money, I am still looking to expand the Editorial Board by adding someone who can spend some time writing letters to get sponsorship and someone else who can take charge of getting people to advertise with us. I have this dream that one day advertisers and sponsors will fund the journal to the extent that I can halve the subscription! Over to you.

Colin W. Plant

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AND JOURNAL OF VARIATION

(Founded by J.W. TUTT on 15th April 1890)

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The preferred method of submission is by e-mail or on floppy disk – even for very short articles. However, we acknowledge that these facilities are not available to everyone and we also accept typed or hand-written manuscripts.

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